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ABSTRACT

This book explores the problems and issues of secondary-school financing in developing countries. It outlines the rationale for expanding secondary education, investigates under what conditions it might be possible to do so at sustainable cost levels, presents case studies of secondary-school financing, and offers policy recommendations. The first chapter outlines the rationale for a new analysis of secondary-school financing in the context of the role that secondary schools play in the development process. The next chapter explores the characteristics of secondary schooling in developing countries using analyses based on the UNESCO database. The following chapter investigates under what conditions it might be possible to increase secondary participation rates at sustainable levels of costs. The next five chapters provide case-study analyses of secondary-school financing issues in Zimbabwe, Malwai, Sri Lanka, China, Costa Rica, Burkina Faso, Mali, Senegal, Cote d'Ivoire, and Madagascar. The next chapter looks across the case-study data and beyond to collate the issues that arise and identify policy options that offer prospects of improved access at sustainable levels of cost without a decrease in quality. The final chapter considers the overall financial challenges that could result in lower costs and improved efficiency. (WFA)

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# Financing Secondary Education in Developing Countries: Strategies for Sustainable Growth.

Keith Lewin
Francoise Caillods

2001

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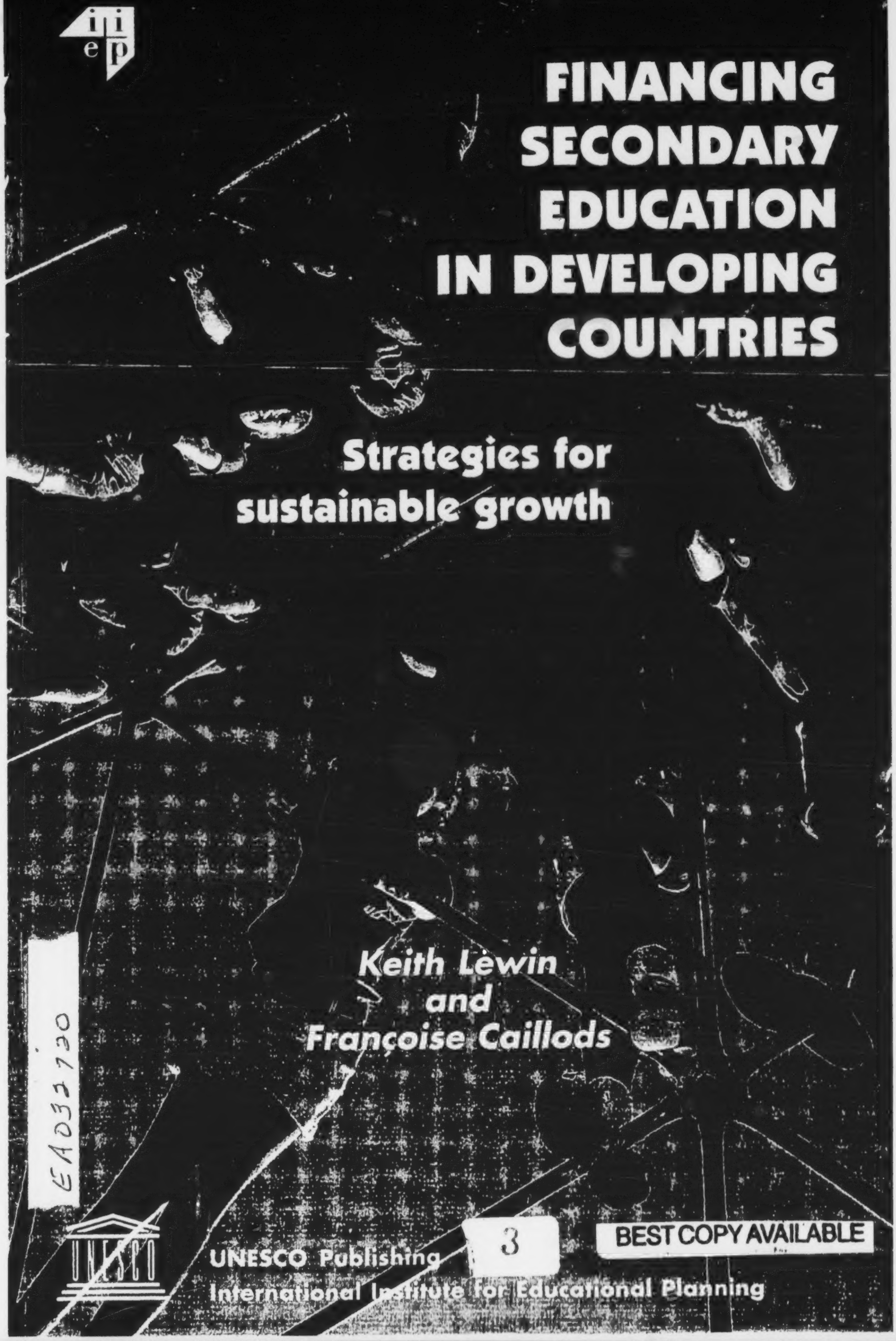

# FINANCING SECONDARY EDUCATION IN DEVELOPING COUNTRIES

## Strategies for sustainable growth

*Keith Lewin*
*and*
*Françoise Caillods*

UNESCO Publishing
International Institute for Educational Planning

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# Financing secondary education in developing countries: strategies for sustainable growth

by
Keith Lewin
Françoise Caillods

UNESCO Publishing

International Institute for Educational Planning

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# Preface

The focus on achieving Education for All after the World Education Forum in Jomtien (1990) has meant a singular emphasis on increasing enrolment in primary schools for many agencies and developing countries. Secondary education has been quietly neglected, squeezed as it is between primary education, the object of so much attention, and higher education, which has never really lost its supporters. Yet what to offer to young children graduating from primary school is a growing matter of concern. As the policies designed to ensure participation of all school-age children in primary education start bearing fruit, and as a larger proportion of children complete primary education, strong pressure will be felt at the higher levels of the education system. How to finance secondary education expansion, how to organize it, and what to teach at that level will be burning issues in the years to come.

Secondary education is indeed a crucial stage for the education system. This is where most primary-school teachers are trained; it is also where the future students of higher education are selected and taught essential foundation skills. Students enter secondary school as children and leave it as young adults. What they experience there will influence the course of the rest of their lives. It is the level at which youngsters consolidate their basic knowledge gained in primary school, but also where they acquire the common culture that will allow them to be useful citizens in a peaceful society, where they build knowledge through experience and experiments, where essential subjects such as science, health education and technology are first taught in a formal way. Finally, this is where youngsters learn how to think, how to be, how to work, and how to co-operate with others.

In the framework of its sixth Medium-Term Plan 1996-2001, the Institute launched a project on secondary education policies and strategies. This followed an earlier project on planning science education provision, which had brought to the fore several issues directly related to secondary education. In this new project an essential concern was to estimate the

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financial consequences of enrolment expansion at primary level for secondary schools. The results of this investigation are the subject of this publication. The book discusses first the rationale for expanding participation in secondary education, linking this to the need to remain competitive in a globalized world. It then explores the characteristics of secondary schooling in developing countries using the extensive UNESCO database. It develops a series of simulations to estimate what the costs of secondary education expansion are likely to be for different groups of countries. This global analysis is enriched by a number of detailed case studies which illustrate secondary school financing issues in a wide range of countries in Africa, Asia and Latin America.

The analysis shows that several developing countries will face acute problems in financing their secondary education expansion if present conditions and cost structures continue to prevail. Several options are discussed which include expanding the share of government resources allocated to secondary education, reducing unit costs, increasing internal efficiency and developing cost-sharing mechanisms. This book has two main thrusts: first it argues convincingly in favour of the need to expand secondary education, within an Education for All perspective, in order to respond to rising demand for places, to increase the numbers in the labour force with more than basic education, and to improve the supply of those who may become teachers; second, it develops several options for financing the development of secondary education, building on the past experience of contrasted countries. It should interest a wide audience, from development partners to educational planners in different countries concerned with the ways and means to develop their education systems.

This book represents an intermediate stage in the IIEP concerns for secondary education. Several issues have emerged from this research which will have to be investigated in the future: these include relevance and quality – it is not just a question of expanding access to secondary education, but also of quality of learning; the need to develop access at affordable cost which may imply the use of alternative delivery systems; and the importance of ensuring that more equity accompanies greater access.

I would like to take this opportunity to express my gratitude to the Department for International Development of the United Kingdom (DFID) for the financial support given to this project.

Gudmund Hernes
Director, IIEP

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This book would not have been possible without the assistance of many collaborators in the different countries, who assisted in developing the case studies. These include not only the named co-authors, but many individuals who contributed insights and data to enrich the research. The authors therefore wish to acknowledge the co-operation and assistance of those in the ministries of education in each of the countries who gave freely of their time. In Malawi, the staff of the Centre for Educational Research and Training (CERT) also contributed helpful insights, as did colleagues from the National Institute of Education in Sri Lanka. Collaborators in China, in Beijing and Hanzhou, were very helpful in unravelling some of the intricacies of school financing in a rapidly changing environment. John Hedges, Anne Pawle and Suzanne Lapstun are thanked for taking on the task of proof-reading the manuscript.

Collecting and analyzing planning and finance data is never easy and requires persistence, skill and tact. It is a tribute to the efforts of all those involved that this book can now present an analysis grounded in empirical data from each of the countries, which sheds new light on recent developments.

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# Introduction

At the World Conference on Education for All in 1990, most developing countries reaffirmed their commitment to providing universal access to a first cycle of education to their school-age children. As a result, primary enrolments throughout the developing world have grown, fuelled by grants, expanded lending and by substantial domestic allocations of resources. Little attention was paid at the conference to the consequences of enrolment expansion in relation to the resources needed for secondary-schools. However, it was clear then that in many developing countries secondary school participation rates could not grow rapidly without changes in the structure and nature of their financing. Countries with the lowest gross enrolment rates at secondary had the highest ratio of costs per student as a proportion of GNP per capita and were often allocating substantial proportions of the total education budget to secondary. This book takes up the challenge that was predicted[1] and explores the problems and issues that surround secondary-school financing.

Chapter I outlines the rationale for a new analysis of secondary-school financing in the context of the changing role that secondary schools play in the development process. It draws attention to the broad dimensions of the problem, comments on the changing characteristics of the labour markets that secondary-school graduates enter and charts structural features that will influence the development of secondary-school systems.

Chapter II explores the characteristics of secondary schooling in developing countries using analyses based on the UNESCO database. This identifies countries with the lowest gross enrolment rates at secondary, describes features associated with low and high levels of participation, and classifies country cases in terms of high and low per-pupil costs.

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[1] The financial modelling, which was undertaken almost a decade ago for the Jomtien Conference, anticipated the growing significance of secondary financing issues. These have now become a serious constraint in many developing countries.

Chapter III investigates under what conditions it might be possible to increase secondary participation rates at sustainable levels of cost. First, a series of simulations are developed which model key parameters in different types of education systems based on data derived from groups of countries in the UNESCO database. This leads to some conclusions illustrating the magnitude of the problems. Subsequently, estimates are generated which show what proportion of GNP might have to be allocated in different groups of countries to achieve higher gross enrolment rates at secondary. The chapter closes with a summary discussion of the main results of the analysis of the magnitude of the problem.

Chapters IV and V provide country case-study analyses of secondary-school financing issues in Zimbabwe and Malawi, and Chapter 6 provides an overview of problems in a set of francophone African countries. Zimbabwe has achieved relatively high participation at secondary, whereas Malawi has one of the lowest participation rates in Africa. Chapters VII and VIII present two Asian case studies – Sri Lanka and China. Both of these countries enrol large proportions of the age cohort at sustainable levels of cost. Sri Lanka manages this largely through public financing centrally; China increasingly mobilizes a wide range of mechanisms for financial support below the national level. Chapter IX explores the case of Costa Rica, a country which has had historically high rates of participation at secondary, but which suffered declines in enrolment-rate growth during the 1980s from which it has yet to recover.

Chapter X looks across the case-study data and beyond to collate the issues that arise and identify those policy options that offer prospects of improved access at sustainable levels of cost without unacceptable deterioration in quality. A general discussion is developed of the scope for budgetary increases to favour increased secondary participation in developing countries. Subsequent sections explore the structure and organization of secondary provision and its cost implications; curriculum constraints and possibilities; mechanisms to increase internal efficiency; opportunities for cost recovery and community support; ways of moderating the costs of secondary-school construction; and finally the range of alternative modes of delivery that may become available for secondary-level educational services.

Chapter XI reviews the rationale for increased participation at secondary level. It then develops a policy framework for the analysis of investment decisions for secondary education. Subsequent sections consider the overall financial challenge, along with a synthesis of policy options that could result in lower unit costs and improved efficiency and generate more cost sharing. The penultimate section explores the role external assistance can play in supporting expanded access and participation. The chapter ends with some concluding remarks.

# Chapter I

# Statement of the problem

*Keith M. Lewin*

In many developing countries the problems of financing secondary schools are acute. Participation rates remain low and are not growing in most of the countries where they are smallest. Costs at secondary level are often high and are unsustainable if participation is to be increased. Employment based on new production methods, the improvement of mature technologies and the widespread diffusion of information and communication technologies increasingly demands workers with more than basic education.

Several key observations serve to make the case for the importance of a new analysis of the problems of financing secondary schools.

First, though secondary schooling is now universal in rich countries, it is a scarce luxury in much of the rest of the world. There are at least 700 million people in the countries with gross enrolment rates at secondary level of less than 40 per cent. A further one billion live where secondary gross enrolment rates (GERs) are between 40 per cent and 70 per cent (about 3 billion, including China and India). In both cases it is likely that the majority of adults have experienced at best the first few grades of secondary schooling, and at worst none at all. In the low GER countries (less than 40 per cent GER) it is unlikely that much more than 20 per cent of school-age children are completing a full secondary cycle.

Second, though progress has been made in increasing enrolments in primary grades since the World Conference on Education, and most people now live in countries where the primary gross enrolment rate approaches 100 per cent, progress on increasing secondary participation has been disappointing. In most of those countries with a secondary GER of less than 40 per cent, participation rates have not increased significantly over the last decade; in countries with secondary GERs between 40 per cent and 70 per cent, the average GER has increased from 49 per cent to only 56 per cent. In countries where GERs exceeded 70 per cent in the 1980s, average enrolment ratios have only increased slowly. As population has continued to grow this has meant that the absolute number of those without access to secondary schools has increased, especially in the poorest developing countries.

Third, the analysis presented in this book indicates that those countries which have low enrolment rates at secondary cannot finance substantially higher rates of participation from domestic resources with current cost structures. Secondary schooling is most expensive relative to GNP per capita in those countries with the lowest enrolment rates. Typically, secondary-school places are much more expensive than those at primary, and it appears that secondary-school systems utilize scarce resources (teachers, buildings, etc.) less efficiently than primary schools. Not only are countries with GERs at secondary below 40 per cent predominantly low income, but also fully two-thirds are concentrated in sub-Saharan Africa, where economic growth has been low and sometimes negative over the past decade. These countries have high population growth and dependency ratios. This also limits the scope for increased investment per student.

Fourth, external support for investment in secondary education has been patchy. The share of aid targeted on secondary education by bilateral donors 'remained tiny, both globally and in Sub-saharan Africa'[1] over the period 1983-93 (Bennell and Furlong, 1997:18). World Bank lending to secondary education declined from 1980 to 1990. At the end of this period it represented only 10 per cent of all lending. This can be contrasted with over 50 per cent in the 1970s. The inclusion of lower secondary in many basic education projects has resulted in some increase since 1990 (World Bank, 1995). However, sub-Saharan Africa has seen its share of IDA funding for education diminish from 50 per cent in 1990 to 21 per cent by 1996 (Bennell and Furlong, 1997). More optimistically, multilateral organizations apart from the World Bank were committing about 22 per cent of their loans to secondary-level projects by 1993. World Bank lending for secondary-level projects has now recovered to about 27 per cent of the total, with general secondary accounting for over 20 per cent. This reflects a renewed interest in the sector (Linden, 1999). The latest DFID policy framework for education (DFID, 1999:15) argues that: 'The two greatest challenges for the secondary level are to absorb the growing numbers of students from expanded primary systems and to provide a quality of education which will build on their basic knowledge and skills, broaden their competences and enhance their employment opportunities'. This recognizes the importance of the problems emerging related to secondary provision.

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[1] According to DAC's Credit Rating System.

Rates of return for secondary schooling remain high and are often argued to be above the opportunity cost of capital and the rates of return for many other types of investment in agriculture, industry and infrastructure (World Bank, 1995). Rates of return on different levels of schooling have been changing as a result of structural shifts in employment and in response to the increased supply of school-leavers. As primary schooling becomes near universal in much of the developing world, rates of return at this level are likely to fall; where secondary-school graduates remain relatively scarce, the rate of return on their schooling is likely to increase.

There is evidence that investment in secondary education is associated with export-led growth, utilizing skill endowments generated by this level of schooling (Wood and Ridao-Cano, 1996; Nelson and Pack, 1998) and that those with secondary schooling benefit directly and substantially from their participation (Knight and Sabot, 1990). It has been argued that investment in secondary schooling has been especially significant for the rapid growth that East-Asian countries experienced in the 1970s and 1980s (Lewin, 1999; Asian Development Bank, 1997). Effective secondary schooling offers access to abstract reasoning and the kind of flexible thinking skills associated with growth-orientated production and new jobs in manufacturing and the service sector, which have an increasing information processing and knowledge content. An under-supply of these skills is often seen as a constraint on development (Caillods et al., 1997).

None of the points made above should be taken to devalue the importance of continued investment at the primary level. This is especially the case in countries where primary enrolment growth has stagnated (Bredie and Beeharry, 1998; Colclough and Al-Samarrai, 1998). This remains a major challenge, but it cannot be seen in isolation from investment in other parts of education systems. This is true for developmental reasons. No country can respond successfully to the need to increase production in manufacturing and services without middle-level workers likely to have benefited from secondary schooling. It is also true because inadequate provision of secondary schooling will itself restrict the possibilities of increasing enrolment at primary level – through constraints on the supply of those qualified to be trained as teachers.

## 1. The changing importance of secondary schooling in developing countries

The general case for investment in education as a necessary, but not sufficient, condition for development has been extensively made and is widely accepted. Expansion in enrolments at primary and secondary levels has been supported by the shared beliefs by governments and development agencies that social and economic development benefit directly and indirectly from mass participation in schooling. There is an extensive and highly nuanced literature demonstrating linkages between investment in education and training, and desirable development outcomes. There are well-known studies relating economic growth to educational investment dating from the 1960s, and more recent literature correlating levels of education with improved productivity in agriculture and industry under particular conditions. Other studies suggest that investments in training benefit from higher levels of general education amongst trainees, and that social benefits in health, nutrition, fertility and gender equity are also closely related to raised levels of education. There are also suggestions that improved access to education can reduce income inequality. Evidence on the effects of education on development is widely reviewed e.g. World Bank, 1995; Psacharopoulos, 1995; Lewin, 1994; and Colclough with Lewin, 1993. The findings, which generally support the positive impact of educational investment on development, have been derived from studies at all levels. As primary schooling becomes more universal, the focus is shifting to the exploration of the benefits of secondary schooling.

## 2. Interactions with basic education

The 1990s have seen an emphasis on Education for All. Most countries which had primary gross enrolment rates below levels sufficient to provide universal access over the first cycle have committed themselves to plans to achieve this goal. Donors and development agencies have supported investment in primary schooling as a priority. For good reasons, attention has been focused on those countries with the lowest primary enrolment rates, and those where inequities in access and retention appear most resistant to change. Primary gross enrolment rates have increased in many countries, as have the related budgetary allocations. As a result, most developing countries with low enrolment rates now have large, externally supported basic education projects under way.

The priority given to investment in primary and basic education in world fora and national plans has overshadowed analysis of the changing role and financing problems that affect secondary schooling. As noted above, bilateral assistance to secondary education has been modest. The generation of basic-education projects may not have actually 'crowded out' initiatives to improve access and quality at secondary level, but it is plausible to argue that the policy agenda has been skewed to the extent that fewer secondary projects have been externally financed than in the past. It is of course true that many basic-education projects have included lower secondary (Grades 6-9) in their activities, but not all do. Where they do, it is arguable whether the focus has remained on the development of basic skills, rather than on things that secondary schools might be thought especially suited to develop – high-level thinking skills and occupationally relevant knowledge and competence.

It was always clear that the Education for All agenda (1990) carried with it implications that extended beyond the first cycle of education. Analysis conducted in the early 1990s showed that in all but the short term the recurrent cost burden of increased participation would be most problematic at secondary level in countries with the lowest enrolment rates at the start of the decade (Colclough with Lewin, 1993). Where secondary enrolment growth is occurring without changes in cost structure, these predictions are becoming true.

The picture that is emerging can be described thus. As the majority of countries achieve gross enrolment rates in excess of 90 per cent at the primary level, improved quality and enhanced achievement are likely to preoccupy policy-makers and planners. These concerns are not as obviously linked to financing questions as is increased participation. The school-effectiveness literature contains much evidence that school quality varies as a result of a wide range of factors. Many are independent of resources. In every system the school-effectiveness literature indicates that schools can be found which perform at very different levels, despite having essentially similar inputs. Value-added type analyses also indicate that institutions with modest overall levels of achievement may enhance learning at least as much as high-scoring and well-resourced schools.

In every country, allocations to primary have some upper limit determined by what is judged to be a sustainable level of cost per primary-school place. When most primary school-age children are enrolled, gains in quality and achievement are likely to depend on improved curricula, better school management and more efficient use of resources. In these cases, budgetary growth for primary will then follow a profile driven predominantly by demographic changes and the fortunes of the national economy. Where the growth of the school-age cohort is high, and economic growth modest, it will generate continuing pressures to shift allocations to the first level, possibly at the expense of investment in secondary.

Countervailing this tendency for allocations to primary to grow, there will be additional pressure to increase enrolment rates at secondary level in countries where secondary-school participation is far from universal. There seem to be few historical precedents for significant declines in transition rates into secondary as primary-school enrolments grow. The exceptions occur on the shortest of time scales and are associated with major pushes to universalize primary education. The reasons for this are easily appreciated. Pass rates in primary school leaving examinations generally do not deteriorate over time (even if standards may change); as a result, the numbers graduating successfully increase. Consequently, the competition for secondary-school places intensifies and this creates increased effective demand to expand the supply of secondary-school places. To the extent that governments are susceptible to popular pressures to expand opportunity, methods then need to be found to finance secondary-school expansion – including the substitution of private for public expenditure where this is a feasible option.

Closely related to the simple dynamic created by an increased flow of primary graduates are the changes that are likely to take place in the social functions and perceived returns to access and participation in secondary schools. Where primary schooling is terminal for the majority, those who succeed in graduating enjoy a premium in the market place compared to those who drop out at lower levels. As primary schooling becomes universal, the comparative advantage of possessing it falls to the point where it has little competitive value. Rates of return to primary – perceived and real – will cease to be seen as much of a reason for individual decision-making to continue in school. Completion of primary will become, for most, a pre-entry condition to secondary. What will increasingly differentiate entrants to the labour market will be the level and achievement of students through secondary school. If primary schooling had in part social selection and screening function in the past, this will be largely replaced by participation and achievement in secondary schools.

## 3. Curriculum issues

Another facet of the changing role of secondary schools relates to curricula patterns. These carry implications for school organization and resources. It is now fairly universal to stress the importance of the acquisition of basic skills through the primary grades. At the simplest level these consist of literacy and numeracy, fluency in appropriate languages, the rudiments of scientific literacy and common exposure to that which is culturally valued, e.g. understandings derived from history and geography, and socialization into culturally appropriate behaviour. Most primary-school curricula stress the importance of these basic learning tools to lay the foundations for more systematic acquisition of skills and capabilities at higher levels. Secondary-school curricula (especially upper secondary) are typically more specialized, focus increasingly on analytic and abstract skills above the level of knowledge and recall, and, in principle as well as practice, stress links with outcomes that relate to that which is useful in employment and adult life. It is at secondary level that science and technology can be developed in depth, language skills can be consolidated and higher cognitive skills refined and applied to problems. Amongst other things, this reflects the capacity of older students to reason abstractly and to acquire complex competences that are usually judged inaccessible to primary-age children. As these differences between the potentialities and purposes of primary and secondary schools are emphasized, it will become more and more important to reshape investment in secondary schooling so that it can promote higher-level learning goals effectively and be accessible to greater proportions of the population.

The differentiation of primary- and secondary-school curricula is occurring for reasons that are not all located within national education systems or their students. One reason is that public selection examinations are concentrated increasingly at the end of lower- and upper-secondary schooling. These assessments not only determine which students proceed and which enter the labour market. They also certify competences which are linked more or less to norms which have an increasingly international character. National examination boards are linked into a network of professional examiners who share many judgements of what constitutes appropriate outcomes at a given level of schooling in particular subject areas. Cross-national studies provide evidence of achievement against common yardsticks. This can provide an impetus for change directed towards common sets of outcomes. International systems of indicators are being developed across countries that may also promote convergence in valued outcomes.

The more educational demand is influenced by external standards and international conventions, the easier it will be for education systems to be shaped by criteria, content and methods that originate elsewhere. This could be an asset if it leads to higher levels of achievement relevant to domestic needs. But it may also lead to secondary schooling which attempts to replicate conditions and outcomes most relevant to quite differently structured economies and labour markets. These developments raise issues about the purposes of schooling, especially at the secondary level, which also have implications for curricula, participation and finance.

As secondary-school systems expand, and become less selective on entry, average achievement levels may fall if curricula offerings are not adjusted to reflect the more differentiated needs and capabilities of a wider range of secondary students. Problems of retention and progression may also be exacerbated. Achievement levels amongst average and below-average students need to be set at levels that are attainable and represent useful learning gains. Low achievement in critical areas, e.g. science, technology, mathematics and communication skills, needs identifying and the reasons for it need exploring (Caillods et al., 1997). The costs of providing expensive options in the curriculum have to be constrained to levels that allow higher rates of participation. Standards of provision necessary to reach learning outcomes derived from well-resourced systems may not be feasible in impoverished systems without restricting access to a small minority.

## 4. Globalization

These observations can be extended with reference to changes in the global economy. Globalization has no single definition. It includes the development of markets with a level of integration between developing and industrialized countries; increased movement of labour and jobs between countries; inter-connectedness of populations in different parts of the world through communication technologies, whose costs are rapidly reducing; student work and study abroad; and cultural convergence in aspects of taste and values promoted by exposure to international media, travel and increasing wealth. It is at secondary and higher levels that the influences of globalization are most likely to be felt.

Data on employment by sector illustrate very clearly that in general, as national economies become richer, the proportions of employment begin to shift from agriculture to industry and then to services. Those countries which have the most developed economies have the greatest proportions of employment in manufacturing and services. Where these shifts in employment occur, the importance of effective secondary schooling is obvious. It is at this level that abstract thinking skills are beginning to be acquired, specific occupationally relevant skills can be taught and students become motivated to seek employment. In most countries where more than 50 per cent of the labour force is outside agriculture, lower-secondary schooling is approaching universal levels. In those countries where this has yet to take place, it is plausible to argue that development will be constrained by an under-supply of secondary-school graduates.

In the most developed countries, the service sector is frequently the largest employer. These countries typically provide extended periods of skill development during the secondary-school years, and subsequently, to build on basic skills and develop abstract thinking. Many of the new jobs that are becoming available benefit from a mix of familiarity with information technologies, developed interpersonal skills, analytical capabilities, foreign languages and the abilities associated with the co-ordination and management of complex tasks. The knowledge-intensive parts of labour markets employ those with the highest levels of technical competence and increasingly depend on creative design, product innovation, efficient production technology and the organization of work in ways which adopt best practices and flexible workforce deployment.

There is, of course, a potential fallacy in taking an oversimplified view of the need to increase participation in secondary schooling. Just because more developed labour markets draw on higher-level skills in the labour force, and these skills are associated with higher levels of secondary-school participation, it does not follow that providing more secondary schooling will necessarily lead to accelerated development. However, the counter-proposition is weak. Continued emphasis on primary and basic education, once most of the population enjoy its benefits, is unlikely to create conditions conducive to economic transformation dependent on movement up the skill and value-added hierarchy of production. There is presumably some level of balanced investment, which optimizes the proportion of those with higher levels of skill and competence obtained from effective secondary schooling who can occupy middle-level employment niches which draw on such skills. Judgements as to when this is achieved clearly need to be made in relation to particular economies and education systems, taking into account the sectors where employment is located and likely to grow, signals of under- and oversupply for secondary graduates, and whatever other constraints may exist on growth.

## 5. International labour markets

Other dimensions related to globalization and the changing role of secondary schooling need noting. First, the development of international markets in labour and jobs has encouraged the movement of production, especially that which uses mature technologies, down a staircase related to factor costs. Where labour costs are an important component of production, it is the quality of labour, its technical skill, language abilities and motivation, that creates comparative advantages. These derive partly from educational investment at secondary level. At any given level of labour cost, those countries which can offer a more highly educated labour force are likely to attract more investment, whether it is in manufacturing or services. There are an increasing number of examples of production shifting from industrialized countries to cheaper developing countries which have this comparative advantage.

Second, new communication technologies make it possible to access information worldwide. It is now realistic for many in middle-income countries to link to common networks, which allow businesses to run internationally and services to be delivered from sites which may be located anywhere the expertise exists. International flows of students have been increasing, resulting in extensive networking of ideas and opportunities and, in some, convergence of educational experience and aspirations. The English language provides access to many of these opportunities and is often acquired, or at least consolidated, through secondary schooling.

Third, temporary migration of labour from poorer to richer countries is almost certainly increasing. These flows have many historical origins, but were typically dominated by either professionals migrating to the richer countries, or low-skill, low-cost migrant labour connected to specific industries where labour was scarce. It seems possible that in the future such flows will be restricted to the more educated and skilled, who are likely to possess secondary education and above, and have evidence that they possess scarce job-relevant competences from qualifications and trade certificates. Where this is true, it will influence the demand for and development of secondary schooling.

## 6. Structural and financing issues

The last set of considerations that reinforces the need to examine problems of secondary-school finance is concerned with structural features of secondary-school systems and their financing.

In many developing countries with low participation rates in secondary schooling, the character and organization of secondary schools have their origins in elite, colonially introduced institutions designed to cater to a small minority of students destined to enter government employment. The history of primary schools has its own life history, which differs between countries. In many cases, primary schools developed to serve large numbers of children and focused through design or default on basic learning tasks. Characteristically, primary-school systems shared a number of attributes which included mass participation, curricula based largely on 'commonsense' content and goals accessible to most educated adults, low levels of material resource support, an absence of specialized teaching, and often little selection of pupils on entry. In contrast, many secondary-school systems have a history which is very different. Most have been highly selective, have specialized teaching and curricula traditions which reflect norms inherited from elite schooling traditions leading to employment in the public sector, and have been relatively well resourced. The point to stress is that existing secondary-school systems may have characteristics which preclude a simple replication of existing institutions to meet new needs for greater access. This is manifestly the case in relation to financing in systems where unit costs are high, both as a proportion of GNP per capita and as a proportion of investment at primary level. High-cost, strongly selective and academically orientated secondary schooling is probably inconsistent with substantially enlarged participation.

A second concern is that different countries have very different traditions of investing in secondary schooling. The spectrum is wide. Some have sought to keep public investment to a minimum and restrict the output of secondary-school leavers to numbers which can be absorbed into the labour market (Malawi, Tanzania). Others have stressed investment at the primary level first and depended on high levels of private demand to allow secondary enrolments to increase rapidly without large increases in the public costs of the secondary system, e.g. Korea.

Thirdly, in some regions, notably sub-Saharan Africa, boarding traditions at secondary have been well established and are often the mode of delivery of preference. These arrangements may be necessary where the population density of secondary-school students is low. The traditions and preferences may persist when expansion allows the proportion of day schools to increase substantially. The cost implications of retaining boarding where it is not essential are often substantial.

Fourth, depending on how provision is organized, investment in secondary schooling may be neither equitable nor efficient. The basic argument is straightforward. Where access to secondary schooling is very restricted, participation is often skewed in favour of the already advantaged, who have access to good-quality primary schools, infrastructral support for learning, and better-resourced family backgrounds. Selection mechanisms which determine who goes to secondary school may fall well short of fair tests of achievement and capability. Increasingly, participation in secondary schools determines occupational futures more than completion of primary. It is important both that selection for scarce opportunity is as equitable as feasible, and that secondary schools as institutions make efficient use of the resources they consume. This may not be the case where historic patterns of organization, curricula tradition and public subsidy are maintained at the expense of expanded access and improved quality and relevance to new needs and learning priorities. The extent to which these assertions hold is an empirical question. There is plenty of circumstantial evidence to suggest that there are problems in many secondary-school systems of high failure rates (related to selection and to school quality), skewed participation (gender, social group, urban rather than rural), overconcentration of learning resources on the few who survive to the highest grades (very small class sizes, expensive and underutilized facilities) and high costs (inappropriate balance between investment in learning resources and staffing costs, heavily subsidized boarding, poor utilization of teaching time).

Finally, the spectre of global recession now poses a new challenge to educational investment at the secondary level. Events in East and South-East Asia, and in Russia, have led to financial crises, and a loss in confidence that will dampen growth and may lead to serious recession across much of the developing world. Government budgets are already suffering from the pressures created by the devaluation of assets, exchange-rate collapses and reductions in tax revenue, which accompany contraction of demand. In the short term, a range of possible consequences can be identified which are often associated with public-sector austerity (Lewin, 1987). These are:

- social sector spending is especially vulnerable to general budgetary restraint;
- reallocation will favour salary over non-salary and capital expenditure;

- expenditure on some levels of education may suffer less from austerity than others;
- significant cost-reduction in schools-systems can only come from reductions in unit costs that are mainly salary dependent and this may compromise quality;
- various kinds of cost recovery will appear a more attractive policy option;
- the poorest countries may become more dependent on donor support and concessionary financing.

First, it probably will not be true that social-sector spending in general, and education in particular, will experience disproportionate reductions in funding. The opposite is at least as likely, since most expenditure is salary recurrent, and strong effective demand for education is likely to remain and influence political decision-making. However, this is not to deny the obvious – the absolute level of investment in education will decline where government revenues are squeezed, with the consequence that the real value of teachers' salaries may deteriorate. If safety nets related to structural adjustment and other policy instruments continue to try to protect education spending, this will benefit education budgets. Second, as the proportion of salary-recurrent expenditure rises, capital spending will be truncated, and non-salary support (learning materials, etc.) could decline to levels that damage quality and achievement. This is likely to have a larger effect on secondary schools where non-salary costs are higher. Third, what happens to the distribution of investment between levels will depend on whether priorities set by government change to reflect new constraints. For example, maintaining targets to achieve universal access to primary over a given time with a reduced amount of recurrent funding could require reallocation from other parts of the education budget, including that currently allocated to secondary schools. Fourth, if recession persists it is almost inevitable that the real value of teachers' salaries will decline, with possible consequences for commitment and performance. Arguably, these declines may have more impact on secondary teachers if their salaries are currently much greater than those for primary teachers. They may also have more opportunity to change employment if their skills are in demand and teachers' salaries become less competitive. Fifth, it is almost inevitable that cost recovery will appear more attractive, but disposable incomes will be falling. Some imagination will be needed to devise feasible methods of recovering costs in equitable and efficient ways at secondary level against this background in the countries most affected by recession. Sixth, external support may become virtually the only source of funding for developmental initiatives at secondary-school level in the poorest countries. If secondary participation is not to fall, it may need to be provided in ways which support some proportion of recurrent costs, where without this assistance infrastructure will deteriorate dramatically. This could be coupled with reformed methods of financing that could lead to sustainable expansion in participation once economic growth returns.

## 7. A rationale

For all the reasons outlined above, the nature of the problem of financing secondary schools in developing countries is changing. This provides the rationale for this book. In essence the propositions that provide the framework for this analysis can be summarized as:

1. Effective provision of secondary schooling is central to development. It can provide a proportion of the population with the opportunity to acquire insights, skills and competences at a higher level than can be acquired in primary schools.
2. The learning outcomes secondary schools can facilitate are in demand. These are likely to be needed in sectors of employment where growth is anticipated, and which depend on workers with abstract-thinking skills and systematically acquired knowledge which can be applied flexibly to new problems.
3. Many of the poorest countries have very low rates of secondary enrolment. In the absence of measures to increase participation, the differences in educational levels of the workforce between these countries and those already achieving secondary gross enrolment rates over 60 per cent are likely to grow. It would be surprising if this were not reflected subsequently in national competitiveness in areas of production which have a substantial knowledge and skill base.
4. Secondary schooling is most expensive in relation to national resources where enrolment rates at secondary are lowest. The reasons for this have to be understood, and the constraints this places on increased participation have to be addressed, if the supply of secondary graduates is to increase.
5. Secondary schooling as organized in many developing countries with low enrolment rates may be as much a source of inequality as a vector in its reduction. Depending on how it is financed and

who benefits, it may be neither equitable nor efficient in meeting national needs. If this is so, reform is needed.

6. Recession will create new stresses on secondary-school financing. Without some considered strategies to provide safety nets to protect current levels of participation in the countries with the lowest GERs at this level, it is possible that enrolments and quality will decline from already-low levels.
7. Balanced investment strategies are needed which reconcile the competing claims for public finance within the formal education system. A careful appraisal is needed in the light of changing domestic and international circumstances which recognizes the trade-offs which are inevitable in prioritizing public investment at different educational levels.

Having outlined the rationale for this analysis of secondary-school finance, it is now appropriate to examine in more detail the characteristics of school systems where problems of participation and financing of secondary schools appear most acute.

# Chapter II

# The status of secondary schooling in developing countries

*Keith M. Lewin*

What, then, are the characteristics of countries with low levels of secondary enrolment?

Using UNESCO data, it is possible to identify those countries which have the lowest gross enrolment rates at secondary (GER2).[1] There are 150 countries for which these rates are available. Forty-four of these have GER2s below 40 per cent. In these countries, the net secondary enrolment rate[2] is likely to be between 20 per cent and 30 per cent as a result of repetition and over-age enrolment. Those who succeed in completing the cycle and passing secondary-school leaving examinations will represent an even smaller proportion of the age group. Thus, in many developing countries, only a small minority participate in and finish secondary schooling.

*Table 2.1* lists the countries with the lowest GER2 for which there are data for 1985 and 1995. For purposes of comparison, the value of primary gross enrolment rates (GER1), the ratio of female-to-male enrolments, educational expenditure as a percentage of GNP and the percentage of government expenditure on education, are also shown.

Fully two-thirds of the countries with the lowest GER2 are in Africa, and especially in francophone countries. Other regions have a small number of cases. On average, the GNP per capita of all these countries is less than US$600. In this group of countries, improvements in primary participation (GER1) have been modest over the past decade (from an average of 76 per cent to 81 per cent, 1985-1995). Ten of these countries have a GER1 exceeding 100 per cent. This indicates that, in principle, enough capacity exists to universalize enrolments at this level (though net enrolments will of course be less).

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[1] Net enrolment ratios are not used, partly because they are widely unavailable at secondary level and partly because they are less reliable for cross-country comparisons than are GERs.

[2] Participation in lower secondary is likely to be greater than for the whole cycle; separate data are not available which would allow the GER for lower secondary to be established.

GER2 has seen almost no increase in the recent past. The average GER2 in 1985 for these countries was 19.2 per cent, and in 1995 it was 20.7 per cent.[3] In 10 cases, GER2 appears to have fallen. The ratio of female-to-male enrolments has increased at primary and secondary level, but remains substantially skewed towards males. On average, females are 82 per cent of males at primary and 71 per cent at secondary. The average proportion of GNP allocated to education appears to have risen marginally from 3.7 per cent to 4.1 per cent, as has the proportion of the government budget allocated to education (from 14.3 per cent to 17.9 per cent).[4]

The picture that emerges for very low-GER2 countries is therefore not encouraging. In these countries, the great majority of students do not complete secondary schooling and it is clear that in a good number most do not make the initial transition from primary to secondary grades. Changes in budgetary allocations appear to have had little impact on participation. Though emphasis on universalizing primary education has had an effect on increasing primary participation, growth in participation at secondary level has remained severely constrained.

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[3] If the anomalous case of Albania is excluded, the average GER2 becomes 17.8 per cent in 1985 and 20.2 per cent in 1995.

[4] Since the missing cases vary between years, these apparent increases should be treated with caution.

Table 2.1 GNP per capita, gross enrolment rates at primary and secondary, females as percentage of males and educational expenditure in countries with GER2 below 40 per cent[5]

| Country | GNP per capita (US$) 1995 | GER1 % 1985 | GER1 % 1995 | Female as % male 1985 | Female as % male 1995 | GER2 % 1985 | GER2 % 1995 | Female as % male 1985 | Female as % male 1995 | Public expenditure as % GNP 1985 | Public expenditure as % GNP 1995 | Education in government expenditure % 1985 | Education in government expenditure % 1995 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Africa** | | | | | | | | | | | | | |
| U. R. Tanzania | 120 | 75 | 67 | 97 | 97 | 3 | 5 | 50 | 83 | 4 | | 14 | |
| Malawi | 170 | 60 | 135 | 76 | 90 | 4 | 6 | 50 | 57 | 4 | 6 | 10 | 15 |
| Burundi | 160 | 52 | 70 | 72 | 82 | 4 | 7 | 40 | 63 | 3 | 3 | 16 | |
| Mozambique | 80 | 87 | 60 | 77 | 71 | 7 | 7 | 50 | 56 | 4 | | 11 | |
| Niger | 220 | 26 | 29 | 55 | 61 | 5 | 7 | 38 | 44 | | | | |
| Burkina Faso | 230 | 27 | 38 | 59 | 65 | 4 | 8 | 50 | 55 | | 4 | | 11 |
| Mali | 250 | 23 | 32 | 57 | 64 | 6 | 9 | 44 | 50 | 4 | 2 | | |
| Ethiopia | 100 | 37 | 31 | 68 | 62 | 13 | 11 | 67 | 83 | 3 | 5 | 10 | 13 |
| Guinea | 550 | 34 | 48 | 47 | 54 | 13 | 12 | 39 | 33 | | | 15 | |
| Uganda | 240 | 74 | 73 | 83 | 85 | 13 | 12 | 53 | 60 | 4 | | | |
| Sudan | | 50 | 54 | 69 | 81 | 20 | 13 | 74 | 86 | | | | |
| Djibouti | | 40 | 38 | 70 | 75 | 12 | 13 | 64 | 73 | 3 | | 8 | |
| Madagascar | 230 | 109 | 72 | 94 | 96 | 29 | 14 | 84 | 100 | 3 | | | |
| Mauritania | 460 | 48 | 78 | 67 | 85 | 15 | 15 | 36 | 58 | | 5 | | 16 |
| Benin | 370 | 68 | 72 | 50 | 57 | 17 | 16 | 42 | 43 | | 3 | | 15 |
| Senegal | 600 | 56 | 65 | 69 | 79 | 14 | 16 | 50 | 60 | | 4 | | 33 |
| Comoros | 470 | 84 | 78 | 78 | 84 | 29 | 19 | 68 | 81 | 4 | 4 | 23 | 21 |
| Gambia | 320 | 68 | 73 | 62 | 86 | 16 | 22 | 43 | 54 | 3 | 6 | | 16 |
| Côte d'Ivoire | 660 | 72 | 69 | 70 | 73 | 20 | 23 | 44 | 50 | | | | |
| Kenya | 280 | 99 | 85 | 94 | 100 | 21 | 24 | 62 | 85 | 6 | 7 | | |
| D.R.Congo | 120 | 86 | 72 | 65 | 69 | 23 | 26 | 41 | 59 | 1 | | 7 | |
| Cape Verde | 960 | 117 | 131 | 95 | 98 | 14 | 27 | 81 | 93 | 4 | | | |
| Cameroon | 650 | 103 | 88 | 85 | 90 | 23 | 27 | 64 | 69 | 3 | | 15 | |
| Togo | 310 | 93 | 118 | 62 | 69 | 21 | 27 | 31 | 54 | 5 | 6 | 19 | 19 |
| Lesotho | 770 | 110 | 99 | 127 | 114 | 23 | 28 | 147 | 155 | 4 | 6 | | |
| Zambia | 400 | 104 | 89 | 90 | 93 | 19 | 28 | 56 | 62 | 5 | 2 | 13 | |
| Nigeria | 260 | 96 | 89 | 79 | 79 | 33 | 30 | 71 | 85 | | | | |
| Morocco | 1,110 | 77 | 83 | 65 | 76 | 35 | 39 | 67 | 75 | 6 | 6 | 23 | 23 |
| **Central America** | | | | | | | | | | | | | |
| Guatemala | 1,340 | 76 | 84 | 84 | 87 | 19 | 25 | | 92 | 2 | 2 | 12 | 18 |
| Honduras | 600 | 111 | 112 | 103 | 101 | 37 | 32 | | | 4 | 4 | 14 | 17 |
| **South America** | | | | | | | | | | | | | |
| Venezuela | 3,020 | 97 | 94 | 103 | 103 | 24 | 35 | 129 | 141 | 5 | 5 | 20 | 22 |
| Paraguay | 1,690 | 105 | 109 | 94 | 97 | 31 | 38 | 97 | 103 | 2 | 3 | 17 | 17 |

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[5] This and subsequent tables are derived from the UNESCO 1998 Statistical Database. Standard UNESCO definitions have been used for the categories. Thus, % females as % males = females as a proportion of males enrolled etc. See World Education Report, UNESCO, 1998.

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| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Asia** | | | | | | | | | | | | | |
| Afghanistan | | 20 | 49 | 48 | 50 | 8 | 22 | 45 | 34 | | | | |
| Yemen | 260 | | 79 | | 40 | | 23 | | 22 | | 8 | | 21 |
| Lao PDR | 350 | 111 | 107 | 83 | 74 | 23 | 25 | 70 | 61 | | 2 | | |
| Myanmar | | 98 | 103 | 95 | 97 | 23 | 30 | 92 | 103 | | 1 | | 14 |
| Nepal | 200 | 80 | 110 | 46 | 69 | 25 | 37 | 32 | 51 | 3 | 3 | 13 | 13 |
| **Europe** | | | | | | | | | | | | | |
| Albania | 670 | 103 | 101 | 98 | 102 | 72 | 35 | 91 | 100 | | 3 | | |
| **PNG and Oceania** | | | | | | | | | | | | | |
| Papua New Guinea | 1,160 | 67 | 80 | 85 | 85 | 12 | 14 | 64 | 65 | | | | |
| Solomon Islands | 910 | 79 | 97 | | 87 | 19 | 17 | | 67 | 5 | | 12 | |
| | | | | | | | | | | | | | |
| Average | 599 | 75.5 | 80.9 | 76.9 | 81.7 | 19.2 | 20.7 | 61.8 | 71.3 | 3.7 | 4.1 | 14.3 | 17.9 |

It is illuminating to consider some comparisons that can be made between countries with low GER2 and those with higher levels. The data set was divided into four groups of countries with GER2 falling within different ranges: 7 per cent-40 per cent, 41 per cent-70 per cent, 71 per cent-90 per cent, and above 90 per cent. The results are shown below using averages[6] for each set of data.

Table 2.2 Average values of GNP, population growth, dependency rates and percentage urban population by group

| Group | GNP per capita 1995 (US$) | GNP per capita ($PPP) 1995 | Population growth rate % 1995 | 0-14 year dependency rate % 1985 | 0-14 year dependency rate % 1995 | Urban population as % of total 1995 |
|---|---|---|---|---|---|---|
| Very low GER2 | 589 | 1,680 | 2.88 | 86 | 83 | 32 |
| Low GER2 | 2,545 | 5,792 | 2.12 | 72 | 64 | 53 |
| Middle GER2 | 5,831 | 7,802 | 1.18 | 48 | 43 | 68 |
| High GER2 | 17,262 | 15,881 | 0.81 | 38 | 34 | 73 |

It is clear that low secondary enrolment rates are found in the poorest countries. Lower values for GER2 are associated with lower GNP per capita in US$ and $PPP[7] (*Chart 2.1*, R squared = 0.53). *Chart 2.2* examines countries with GNP ($PPP) below 5,000. Amongst these the association remains (R squared = 0.49). It is apparent that the GER2 value for countries with GNP ($PPP) per capita between 1,000 and 5,000 can vary widely from below 20 per cent to above 80 per cent. Clearly it is not only per-capita income that is determining levels of GER2. Some poorer countries manage relatively high participation rates at low income levels. Below GNP ($PPP) per capita 1,000, all countries in the database have GER2 below 30 per cent.

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[6] Unweighted averages in this and subsequent tables unless otherwise identified.

[7] International dollars.

Chart 2.1 Gross enrolment rate at secondary by GNP ($PPP) per capita – All countries, 1995

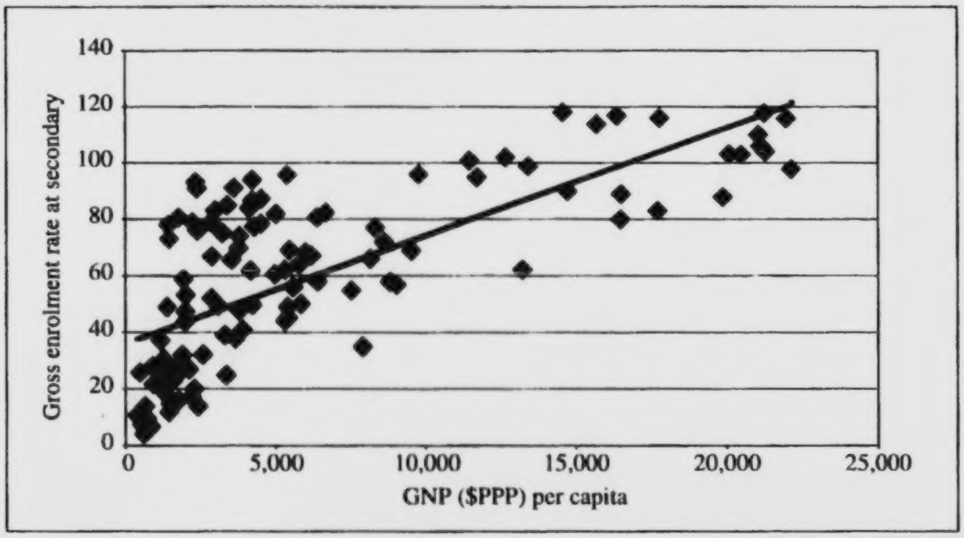

Chart 2.2 Gross enrolment rate at secondary by GNP ($PPP) per capita Countries below $PPP 5,000, 1995

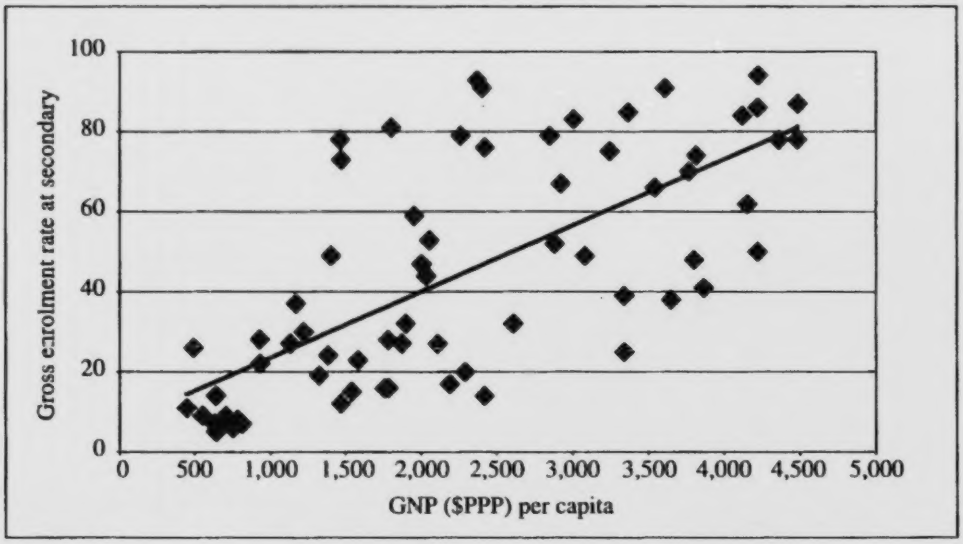

*Table 2.2* also shows that average population growth rates are much higher in countries with low GER2, averaging nearly 2.9 per cent.[8] The 0-14 year-old dependency rate[9] is also very high, at over 80 per cent in very low-GER2 countries. It is less than 35 per cent in those with high GER2. This draws attention to the fact that the school-age population is a much greater proportion of the total population in low-GER2 countries. Consequently, the burden of financing higher levels of participation is much greater. It is noticeable that not only are dependency rates greater in low-GER2 countries, but that they appear to have only fallen slowly over the period 1985-1995.

*Table 2.3* shows gross enrolment rates at primary and secondary and participation by gender.

Table 2.3 Gross enrolment rates and females as percentage of males 1985 and 1995

| | GER1 % 1985 | GER1 % 1995 | Primary female as % male 1985 | Primary female as % male 1995 | GER2 % 1985 | GER2 % 1995 | Secondary female as % male 1985 | Secondary female as % male 1995 |
|---|---|---|---|---|---|---|---|---|
| Very low GER2 | 75 | 80 | 76 | 81 | 19 | 21 | 62 | 70 |
| Low GER2 | 107 | 106 | 95 | 97 | 49 | 56 | 94 | 100 |
| Middle GER2 | 101 | 101 | 98 | 98 | 81 | 80 | 102 | 106 |
| High GER2 | 103 | 102 | 99 | 99 | 92 | 107 | 101 | 102 |

Primary GERs are over 100 per cent on average in all but the first group of countries, suggesting that there are enough places available to enrol all primary-age children, albeit that repetition and over-age enrolment will cause the net enrolment rate to fall below 100 per cent. The average GER1 has not changed in the groups between 1985 and 1995, except in those with the lowest GER2. Net primary enrolment rates probably have improved where repetition and over-age enrolment have been reduced.[10] Gender imbalances in participation at primary level are not significant between the groups, except in the case of the low-GER1 countries.[11]

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[8] These are overall population growth rates. The growth in the school-age cohort may of course be different. Demographic transitions and the effects of HIV may lead to a fall in these growth rates.

[9] This dependency rate is the ratio of 0-14 year-olds as a proportion of 15-65 year-olds.

[10] Gross enrolment rates can remain unchanged as net enrolment rates increase depending on the balance between entry-rate increases and changes in repetition, etc.

[11] Though they remain significant in particular countries.

Secondary GERs follow a different pattern. The mean values of GER2 for the groups of countries have the values that would be expected. GER2 does not seem to have increased over the past decade in countries where it is lowest (below 40 per cent) and in countries with GER2 between 70 per cent and 90 per cent. The greatest gains in participation appear to have been in high-GER2 countries, where the increase has been from 92 per cent to 107 per cent. Gender imbalances in participation at secondary are only apparent in the very low-GER2 group.

When GER1 and GER2 are compared across the poorest countries, it is clear that where GER1 is below about 80 per cent, GER2 is almost always below about 30 per cent. Above this threshold, GER2 varies across a wide range. This reinforces the view that levels of GER2 result from policy choices and investment preferences, as well as constraints on resources (see *Chart 2.3*).

Chart 2.3 Secondary GER by primary GER – Countries with GNP ($PPP) per capita below $PPP 5,000, 1995

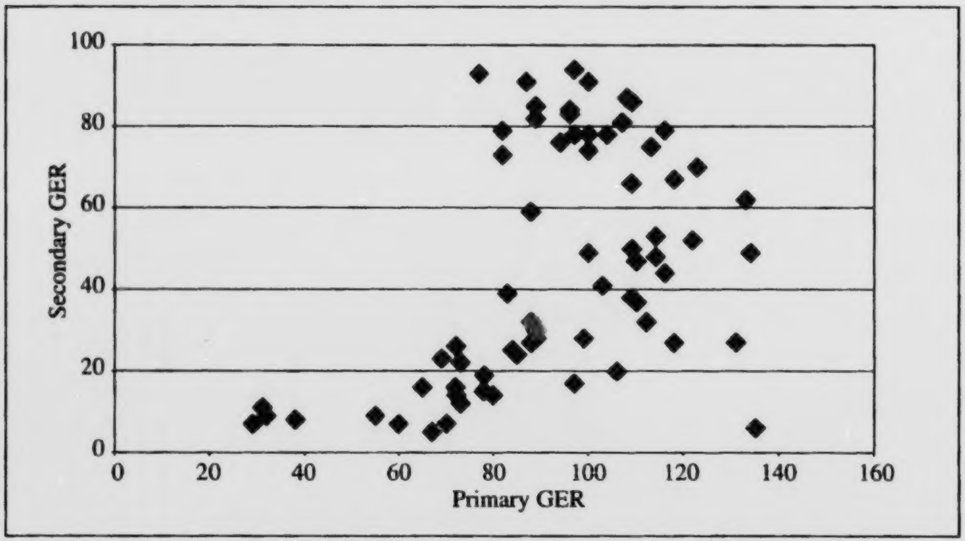


*Table 2.4* shows that the average length of primary, lower and upper-secondary schooling does not vary systematically between the groups of countries.

Table 2.4 Length of school cycle, pupil/teacher ratio and teachers per 1,000 non-agricultural workers

| | Length of primary-years | Length of lower-secondary years | Length of upper-secondary years | Pupil/ teacher ratio primary 1985 | Pupil/ teacher ratio primary 1995 | Pupil/ teacher ratio secondary 1985 | Pupil/ teacher ratio secondary 1995 | Teacher per 1,000 non-agricultural work-force 1995 |
|---|---|---|---|---|---|---|---|---|
| Very low GER2 | 6.3 | 3.3 | 3.0 | 40 | 41 | 26 | 25 | 44 |
| Low GER2 | 6.1 | 3.2 | 3.4 | 30 | 29 | 21 | 20 | 45 |
| Middle GER2 | 5.2 | 3.9 | 2.9 | 22 | 20 | 16 | 15 | 45 |
| High GER2 | 5.6 | 3.5 | 3.2 | 19 | 17 | 15 | 14 | 40 |

However, average pupil/teacher ratios (PTRs) do show a systematic variation. High-GER2 countries have lower PTRs at primary and secondary. PTRs at primary average 17:1 in the high GER2 and 41:1 in very low-GER2 countries. The difference in average PTRs at secondary level is much smaller (14:1 to 25:1). It is significant that primary PTRs in low-GER2 countries are 1.6 times greater than those at secondary, whilst in high-GER2 countries the ratio is only 1.2:1. Both these observations have implications for the financing of more secondary-school places.

*Table 2.5* provides data on expenditure. Low-GER2 countries appear to allocate a smaller proportion of GNP to education, but larger proportions of government expenditure. There is little systematic difference in the percentage of recurrent expenditure allocated to education between the groups.

Table 2.5 Proportion of GNP and public expenditure allocated to education and proportion of expenditure that is recurrent

| | % GNP allocated to education 1995 | % Public expenditure allocated to education 1995 | Recurrent expenditure as a % of total government expenditure on education 1995 |
|---|---|---|---|
| Very low GER2 | 3.96 | 17.90 | 89 |
| Low GER2 | 5.32 | 16.86 | 90 |
| Middle GER2 | 4.70 | 14.39 | 91 |
| High GER2 | 5.86 | 13.33 | 92 |

*Table 2.6* shows how allocations to primary, secondary and tertiary vary and how unit costs between levels are distributed. It suggests that countries with high GER2 allocate more expenditure on average to secondary than do other groups. This observation has to be treated with caution, since this data set contains variable amounts of unallocated income between levels. The data also only relate to public expenditure per student. Private expenditure per student may be substantial and is likely to vary in magnitude between levels.

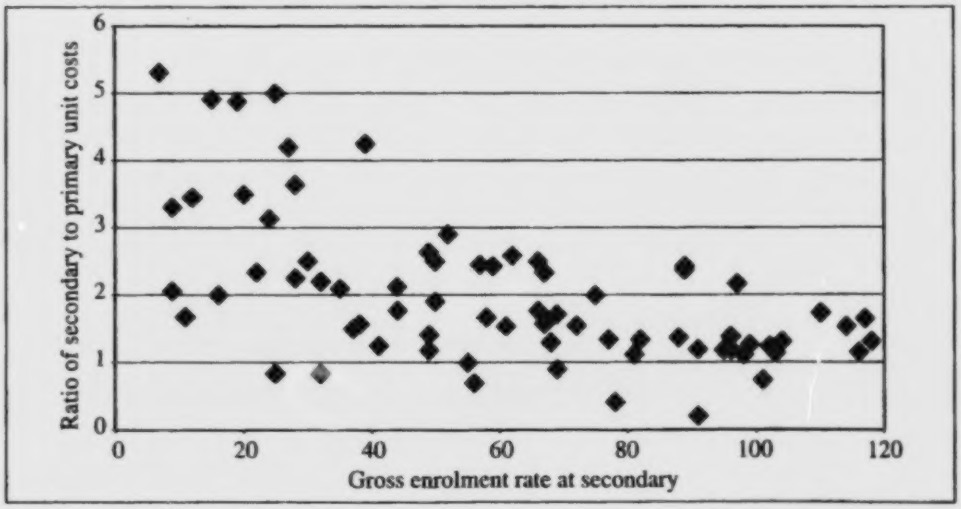
Table 2.6 Allocation of expenditure and unit costs by level

| | % Allocation to primary 1995 | % Allocation to secondary 1195 | % Allocation to tertiary 1995 | Unit cost at primary as % of GNP/ capita 1995 | Unit cost at secondary as % of GNP/ capita 1995 | Unit cost at tertiary as % of GNP/ capita 1995 | Ratio of unit costs at secondary to primary 1995 | Ratio of unit costs at tertiary to secondary 1995 | Ratio of unit costs at tertiary to primary 1995 |
|---|---|---|---|---|---|---|---|---|---|
| Very low GER2 | 48 | 26 | 16 | 11 | 37 | 334 | 3.5 | 8.8 | 31.3 |
| Low GER2 | 49 | 29 | 19 | 11 | 20 | 102 | 1.8 | 4.5 | 9.2 |
| Middle GER2 | 59 | 32 | 17 | 16 | 18 | 44 | 1.5 | 3.0 | 3.4 |
| High GER2 | 48 | 41 | 20 | 19 | 21 | 34 | 1.3 | 1.8 | 1.8 |

The data on public unit costs as a percentage of GNP per capita indicate that tertiary unit costs are a large multiple of those at lower levels in very low-GER2 countries – about 31 times greater than primary on average. The difference averages less than 2:1 in high-GER countries. The comparison of average unit costs between primary and secondary is striking. In very low-GER2 countries this averages 3.5:1; in high-GER2 countries the public unit cost of secondary is only 1.3 times greater than primary. Where the relative cost of secondary-school places is high, increased participation will be more cost-constrained than where it is low. Simply put, secondary-school systems will become much more expensive than primary in terms of the total budgetary allocation needed, where cost ratios remain high and mass participation becomes a reality.

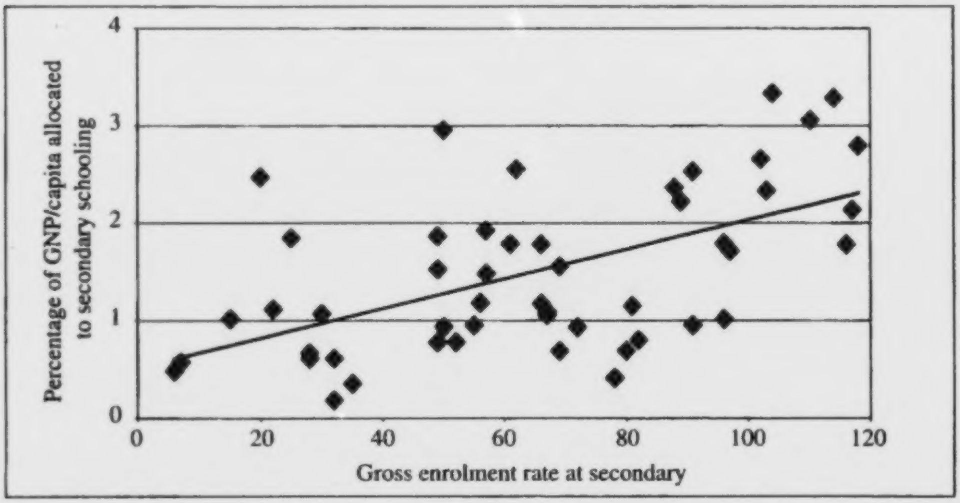
*Chart 2.4* shows how the ratio of secondary and primary unit costs varies with GER2. Above about GER2 70 per cent, this ratio is nearly always below 2:1. The lower the GER2, the higher the ratio is likely to be.

Chart 2.4 Ratio of secondary to primary unit costs by gross enrolment rate at secondary, 1995



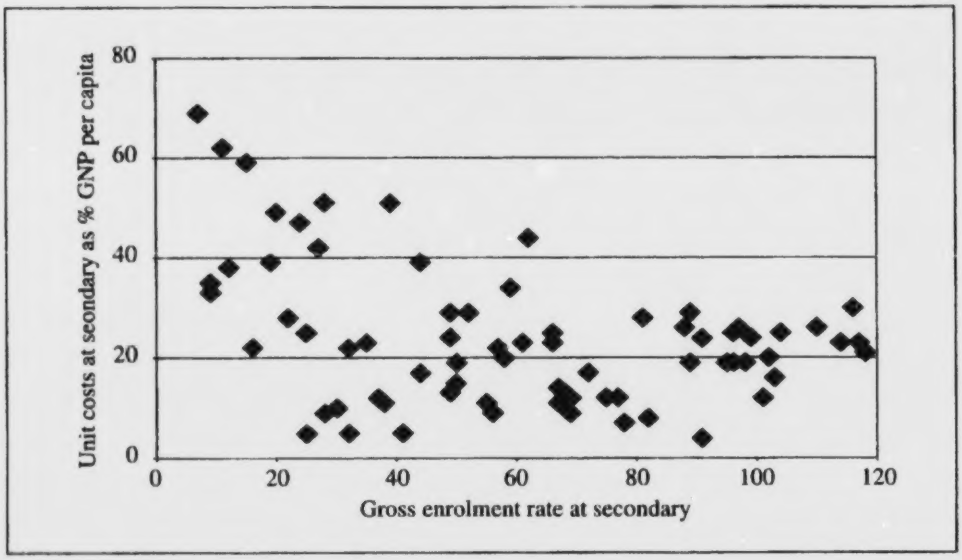
It is evident that there are several possible reasons for the persistence of low enrolment rates at secondary. Most obviously, countries differ in the priority they give to expanding access to secondary schooling. This is crudely indicated by the proportion of public expenditure allocated to secondary schooling, and the proportion of GNP this represents. Data on the magnitudes of commitment are very patchy and not conspicuously reliable. 54 country cases were used to create *Chart 2.5*. This suggests that where allocations to secondary as a proportion of GNP are relatively high, GER2 is also high (R squared = 0.31).

Chart 2.5 Public recurrent expenditure on secondary as a % of GNP per capita by gross enrolment rate at secondary, 1995



Different allocations to education as a percentage of GNP have an effect on participation which is mediated by the level of unit costs for secondary-school places. The higher these are, the less will be the enrolment for a given proportion of GNP. The extent of the relationship between unit costs at secondary and GER2 is shown for the 80 cases on which data are available in *Chart 2.6* where GER2 is more than 65 per cent, unit costs at secondary are always less than 30 per cent of GNP per capita. Many, but not all, low-GER2 countries tend to have higher secondary unit costs as a percentage of GNP per capita. When the available data on public expenditure on education as a percentage of GNP and secondary unit cost as a proportion of GNP per capita are correlated, no association emerges, suggesting that these two variables behave largely independently across a wide group of countries.

Chart 2.6 Unit cost of secondary as a % of GNP per capita by secondary GER, 1995



*High- and low-cost cases*

The macroanalysis can be taken a step further by inspecting the data on countries with GER2 of less than 80 per cent in terms of high and low unit-cost cases.[12] There are insufficient data to repeat this exercise using the proportion of GNP allocated to secondary education, so total education expenditure as a percentage of GNP has been included. The results are shown below in *Tables 2.7* and *2.8*.

From these data, it appears that countries with relatively low per-student investment in secondary education as a percentage of GNP have a higher GNP per capita (average = $3,000 compared to $900), but spend less as a proportion of GNP on education (3.4 per cent compared to 5.5 per cent). These countries have lower dependency ratios as a result of lower population growth, and have marginally higher gross enrolment rates at primary.[13] The average gross enrolment rate at secondary (GER2) in these countries is 52 per cent compared to 33 per cent in the high-cost cases. Low unit-cost countries have a larger proportion of female enrolment. The average secondary unit cost as a percentage of GNP per capita is 13 per cent in low-cost countries and 43 per cent in high-cost (or 38 per cent if the outlying case of Malawi is excluded).

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[12] Low = unit cost at secondary at or below 22 per cent of GNP per capita; High = unit cost at secondary at or above 23 per cent.

[13] This difference may not be reflected in net enrolment rates if they were available. As systems develop and repetition and over-age enrolment are reduced, GERs will fall from values over 100.

Table 2.7 Characteristics of countries with GER2 below 80 per cent – low unit costs at secondary

| Country or territory | GNP per capita 1995 US$ | 0-14 year dependency 1995 % | GER1 1995 % | GER2 1995 % | Females as % males secondary 1995 | Education expenditure as % of GNP 1995 | Education expenditure as % of public expenditure 1995 | Unit cost of secondary as % GNP per capita 1995 |
|---|---|---|---|---|---|---|---|---|
| Dominican Republic | 1,460 | 58 | 103 | 41 | 101 | 1.9 | 13 | 5 |
| Guatemala | 1,340 | 85 | 84 | 25 | 87 | 1.7 | 18 | 5 |
| Romania | 1,480 | 30 | 100 | 78 | 98 | 3.2 | 9 | 7 |
| Zambia | 400 | 97 | 89 | 28 | 93 | 1.8 |  | 9 |
| Chile | 4,160 | 46 | 99 | 69 | 98 | 2.9 | 14 | 9 |
| Turkey | 2,780 | 49 | 105 | 56 | 95 | 3.4 |  | 9 |
| Myanmar |  | 59 | 103 | 30 | 97 | 1.3 | 14 | 10 |
| Paraguay | 1,690 | 76 | 109 | 38 | 97 | 2.9 | 17 | 11 |
| Colombia | 1,910 | 56 | 114 | 67 | 99 | 3.5 | 13 | 11 |
| Thailand | 2,740 | 42 | 87 | 55 |  | 4.2 | 20 | 11 |
| Hong Kong | 22,990 | 28 | 96 | 75 | 102 | 2.8 | 17 | 12 |
| Iran, IR |  | 86 | 99 | 69 | 93 | 4.0 | 18 | 12 |
| Nepal | 200 | 81 | 110 | 37 | 69 | 2.9 | 13 | 12 |
| Argentina | 8,030 | 47 | 113 | 77 | 99 | 4.5 | 15 | 12 |
| Panama | 2,750 | 54 | 106 | 68 |  | 5.2 | 21 | 13 |
| India | 340 | 58 | 100 | 49 | 82 | 3.5 | 12 | 13 |
| China | 620 | 39 | 118 | 67 | 98 | 2.3 |  | 14 |
| Ecuador | 1,390 | 61 | 109 | 50 | 99 | 3.4 |  | 15 |
| Syrian AR | 1,120 | 86 | 101 | 44 | 90 |  |  | 17 |
| Trinidad and Tobago | 3,770 | 48 | 96 | 72 | 112 | 4.5 |  | 17 |
| Costa Rica | 2,610 | 58 | 107 | 50 | 99 | 4.5 | 20 | 19 |
| Mexico | 3,320 | 59 | 115 | 58 | 97 | 5.3 | 26 | 20 |
| Malaysia | 3,890 | 65 | 91 | 57 | 101 | 5.3 | 16 | 22 |
| Honduras | 600 | 83 | 112 | 32 | 101 | 3.9 | 17 | 22 |
| Benin | 370 | 100 | 72 | 16 | 57 | 3.1 | 15 | 22 |
| Average | 3,042 | 62 | 101.5 | 52.3 | 94 | 3.4 | 16.2 | 13 |

## Table 2.8 Characteristics of countries with GER2 below 80 per cent – high unit cost at secondary

| Country or territory | GNP per capita 1995 US$ | 0-14 year dependency 1995 % | GER1 1995 % | GER2 1995 % | Females as % males secondary 1995 | Education expenditure as % of GNP 1995 | Education expenditure as % of public expenditure 1995 | Unit cost of secondary as % GNP per capita 1995 |
|---|---|---|---|---|---|---|---|---|
| Albania | 670 | 50 | 101 | 35 | 102 | 3.4 | | 23 |
| Oman | 4,820 | 94 | 80 | 66 | 95 | 4.6 | 15 | 23 |
| Tunisia | 1,820 | 58 | 116 | 61 | 94 | 6.8 | 17 | 23 |
| Maldives | 990 | 94 | 134 | 49 | 97 | 8.4 | 14 | 24 |
| Lao PDR | 350 | 86 | 107 | 25 | 74 | 2.4 | | 25 |
| Jamaica | 1,510 | 51 | 109 | 66 | 99 | 8.2 | 8 | 25 |
| Gambia | 320 | 73 | 73 | 22 | 86 | 5.5 | 16 | 28 |
| Swaziland | 1,170 | 79 | 122 | 52 | 95 | 8.1 | 22 | 29 |
| Belize | 2,630 | 77 | 121 | 49 | 95 | 6.1 | 21 | 29 |
| Mongolia | 310 | 68 | 88 | 59 | 103 | 5.6 | | 34 |
| Mali | 250 | 95 | 32 | 9 | 64 | 2.2 | | 35 |
| Guinea | 550 | 94 | 48 | 12 | 54 | | | 38 |
| Comoros | 470 | 91 | 78 | 19 | 84 | 3.9 | 21 | 39 |
| Zimbabwe | 540 | 84 | 116 | 44 | 97 | 8.5 | | 39 |
| Togo | 310 | 90 | 118 | 27 | 69 | 5.6 | 19 | 42 |
| Namibia | 2,000 | 79 | 133 | 62 | 102 | 9.4 | 21 | 44 |
| Kenya | 280 | 90 | 85 | 24 | 100 | 7.4 | | 47 |
| Morocco | 1,110 | 61 | 83 | 39 | 76 | 5.6 | 23 | 51 |
| Lesotho | 770 | 78 | 99 | 28 | 114 | 5.9 | | 51 |
| Mauritania | 460 | 80 | 78 | 15 | 85 | 5.0 | 16 | 59 |
| Ethiopia | 100 | 90 | 31 | 11 | 62 | 4.7 | 13 | 62 |
| Burundi | 160 | 92 | 70 | 7 | 82 | 2.8 | | 69 |
| Malawi | 170 | 93 | 135 | 6 | 90 | 5.7 | 15 | 145 |
| | | | | | | | | |
| Average | 946 | 80 | 94 | 34 | 88 | 5.7 | 17.2 | 43 |

It is probable that some of the differences between the high- and low-cost groups of countries are the result of different patterns of funding. GER2s in the low unit-cost countries can be relatively high if a substantial proportion of the total cost of secondary-school places is being borne privately.[14] There are no reliable data on the extent to which this is so, partly because patterns of public subsidy of private systems are complex and partly because data are often simply not collected.

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[14] In some countries national data do not adequately account for expenditure at the local level from local authorities, e.g. China. Where this is the case it will also be true that GER2 can be higher than it would be if financed solely from national-level funding.

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There is food for thought in the observation that the high unit-cost countries do have lower GER2s, and have much lower GNP per capita, than the low unit-cost countries. Many of the highest unit-cost countries are in Africa. High public-unit costs generally arise from relatively high salary levels and from low PTRs. Salary levels in themselves must be judged in relation to national labour markets and the cost of living. It may well be necessary to pay relatively high salary costs as a proportion of GNP per capita in countries where groups of teachers compare themselves with those working in small, relatively well-paid modern sectors. Secondary-school teachers often have skills that qualify them for alternative employment in such jobs. There may or may not be more room to manoeuvre in relation to PTRs. Secondary schools are run at teacher-per-class ratios that vary between about 1.5:1 and over 3:1. In the latter case, PTRs will be much lower than in the former, and unit costs much higher. These will act as a brake on increased participation.

The discussion above does not explore the magnitude of private contributions or the relationships that may exist between public and private financing of secondary schooling. Clearly these can be very significant in determining levels of participation associated with given levels of public investment. In some countries the principle of private contributions is well established and a large proportion of total recurrent costs may be met outside the public budget; in others, private contributions are neither expected nor offered, except on the margin. It is unclear, and likely to be country specific, how the propensity to contribute privately varies with changes in the level of public investment. It is probable that, other things being equal, the availability of private finance is likely to be most constrained in the low GNP-per-capita countries, though of course part of the ability to contribute will be determined by patterns of income distribution.

The last issue regarding the status of secondary schooling in different countries relates to demography. *Table 2.2* indicates that dependency rates are highest in the low-GER2 countries and that most of these countries are in Africa. Many countries in other parts of the world have undergone demographic transitions to low growth, such that the school-age population is a small proportion of the working-age group and that the total number of school-age children is increasing slowly or not at all.

In some cases (e.g. Hong Kong, Taiwan, Republic of Korea, Sri Lanka, Singapore), the school-age population will decline. This will ease the burden of universal enrolments at primary and secondary as the dependency rate decreases. In the low-GER2 countries, population growth of the school-age cohort has averaged around 3 per cent over the last decade. If this continues, school populations will double in less than 25 years and dependency rates will remain high.

Most critical to this prognosis is the impact on the school-age population and dependency rates of high rates of HIV infection. There are no systematic and representative data that would enable accurate projections to be made. However, there are many indications that this may be the single-most serious problem that will affect the capacity to sustain and improve rates of schooling at primary and secondary levels in some countries. The AIDS Assessment Study undertaken by the World Bank in Malawi in 1988, indicated that by 1997 about 10 per cent of the cohort of education staff might have died from AIDS and that mortality would reach 40 per cent by 2005. The current Plan Implementation Framework assumes teacher attrition of 11 per cent annually, much of which is due to HIV/AIDS. In Francistown, Botswana, an HIV infection rate close to 50 per cent has been reported and one-third of pregnant mothers tested in Zimbabwe in 1995 were HIV-positive (Cohen, 1999).

It is not necessary to have precise data to indicate the most significant consequences of high rates of HIV. The first effects are to diminish the size of the teaching force and the effective length of teaching careers, since rates of infection in Africa are typically highest amongst those in the 20-30 year-old age group. If attrition in this group reaches 3 per cent, half will have died within 14 years. This carries very significant implications for teacher supply and training. Over time, it may be that the rate of school-age population growth declines, since there will be fewer reproductively active adults and because a proportion of children will die from maternal transmission before reaching school age. It seems likely that in the short term, dependency rates will increase dramatically and that the proportion of orphaned children will increase. The following charts contrast the demographic situation in populations with high growth population rates and increasing mortality amongst the aged (*Chart 2.7*), demographic transition to low population growth (*Chart 2.8*), and demographic collapse related to HIV (*Chart 2.9*). The boxes on the charts show the size of the school-age population and the working-age population.

Chart 2.7 Population pyramid – High growth – Low life expectancy

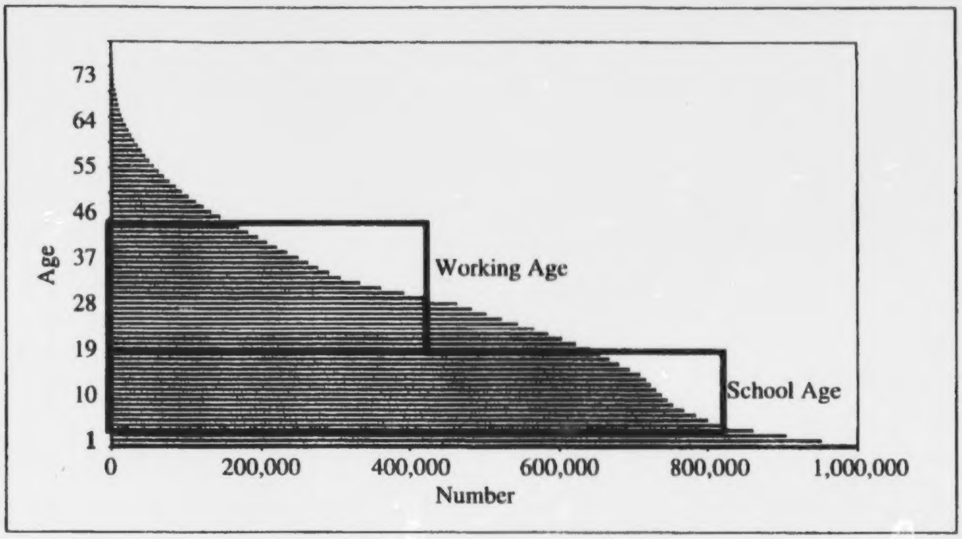


Chart 2.8 Population pyramid – Demographic transition to low growth

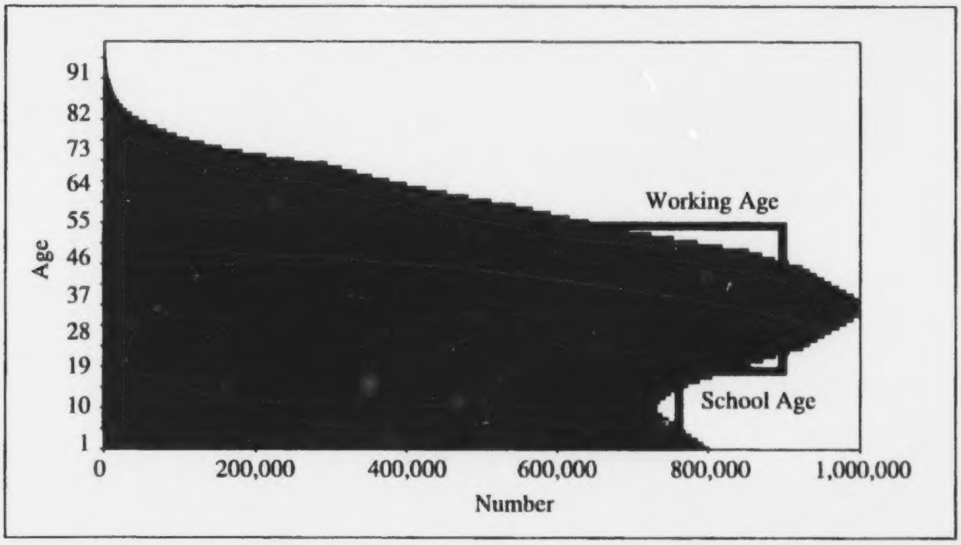
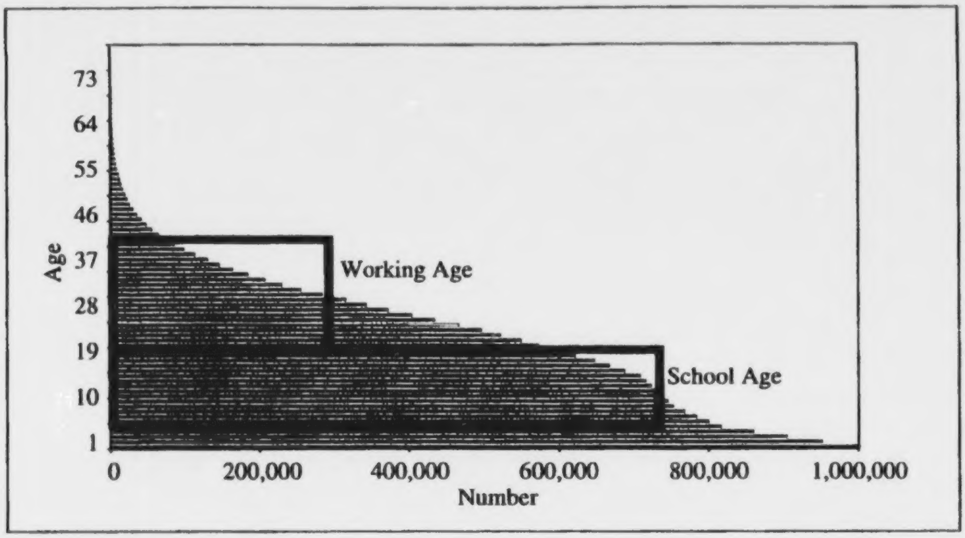


Chart 2.9 Population pyramid – Demographic contraction



From these charts it is evident that dependency rates could reach high levels in countries where mortality is high amongst young adults. The constraints on expansion of primary and secondary schooling will become those of teacher supply. It remains unclear exactly how HIV and AIDS will have an impact on the demographic characteristics, since a myriad of parameters will affect how infection will spread and what its consequences will be. The latest United Nations estimates (United Nations, 1998) make this clear. There are considerable uncertainties about the rate of infection, the level at which it may peak in different countries, and the length of time between infection and the development of full-blown AIDS.

It is possible that pessimistic projections of mortality rates will prove unfounded if health education campaigns are successful. However, in those countries worst affected, it is clear that significant demographic changes are likely and are already happening. These will shape both the nature of the challenge of increasing secondary enrolments and the methods through which expansion can be sustained. They will also change important characteristics of secondary-school students, who are more likely to be orphans and/or have family responsibilities towards siblings.

The next chapter extends this descriptive analysis to consider whether increased participation in secondary schooling is likely to be financially viable in different countries.

## Chapter III

# Are higher secondary enrolment rates achievable?

*Keith M. Lewin*

This chapter looks forward to analyze the prospects for increased secondary participation. The first section models different types of countries in a generic way. The second part uses available data to develop insights into the nature of the financial challenge in different countries. The concluding remarks outline the major factors that will determine progress over the next decade.

## 1. Some projections

Projections can be developed illustrating the challenge that confronts countries which have low GER2s and which wish to increase them. An enrolment-driven projection model has been used to simulate various scenarios based on exemplary data derived from the UNESCO database. Three variants – Simulations 1, 2 and 3 – have been created with the baseline characteristics shown in *Figure 3.1*.

Simulation 1 uses data typical of low-GER2 countries in sub-Saharan Africa, where GER1 is also low. In these countries, low participation at primary and secondary is accompanied by high rates of repetition and drop-out, and low transition rates into secondary. Population growth is high and the ratio of secondary to primary unit costs is typically over 3.5:1 – in some cases very substantially so.

Simulation 2 is illustrative of those countries which have nearly reached GER1 = 100 per cent, but still have GER2s which are below 40 per cent. These countries have somewhat lower repetition and drop-out rates, but many retain high population growth rates. This profile also resonates with a number of sub-Saharan African countries and some in other regions with low GER2s.

Simulation 3 uses data more typical of countries with higher GER2s around 65 per cent that have achieved GER1 of close to 100 per cent. In these countries, population growth is usually lower, as are repetition and drop-out rates. Most of these countries are outside Africa.

The simulations have been run from these baseline data to explore the behaviour of GERs and recurrent costs over a 15-year period under a number of different conditions. The basic assumptions are that repetition and drop-out rates can be halved over the next 10 years through measures to improve access and quality. Reduced repetition creates savings, since pupils spend less time enrolled to reach a given grade. Reductions in drop-out create additional costs as a result of greater enrolment.

The model is configured with a six-year primary cycle and a six-year secondary cycle. This seemed the most straightforward approximation to make and represents the most common pattern. The GERs calculated relate to these cycles. In principle, there are several different patterns that could exist at secondary level, depending on how enrolments are distributed between lower and upper secondary. Clearly, if enrolments at secondary are concentrated at lower secondary, and if costs at this level are lower than in upper secondary, higher GERs at lower secondary could be obtained than if enrolment is evenly distributed across all secondary grades.

The model generates costs from the flow of students and estimates of the cost per pupil at different levels. For ease of interpretation the results are presented in terms of multiples of the recurrent cost in the base year from which the model starts. Higher education allocations are not included in the model.[1]

The implications for educational expenditure as a proportion of GNP and as a proportion of total public expenditure will depend on how national economies grow. If real GNP does not grow (implying a declining GNP per capita as population increases), all the increase in real costs would need to be found from an increase in the proportion of GNP allocated to education. If GNP grew at 3 per cent per year, the same as population growth in the base model, then the national education budget would be 1.5 times larger in real terms after 15 years, assuming it retained the same share of public expenditure.[2] This needs to be borne in mind when interpreting the results below. In sum, 3 per cent growth would allow sustainable financing at current levels of allocation for growth in public costs of education of 1.5 times.

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[1] Higher education costs could easily be included. The difficulty is to decide what assumptions would be reasonable for a 15-year period given the widely different current participation rates and investment levels.

[2] Implicitly this assumes that government expenditure remains the same proportion of GNP over the projection period.

Figure 3.1 **Baseline data for simulations**

| Parameter | Simulation 1 | Simulation 2 | Simulation 3 |
|---|---|---|---|
| | Low GER1 and low GER2 (14%) | High GER1 and low GER2 (36%) | High GER 1 and middle-level GER2 (65%) |
| | High population growth, low primary and secondary GER; high unit-cost ratio secondary primary | High population growth, high primary GER, low secondary GER, high unit-cost ratio secondary primary | Low population growth, high primary GER, middle-level secondary GER, low unit-cost ratio secondary primary |
| Population growth | 3.0% | 3.0% | 2.0% |
| Primary GER | 63% increasing to 100% over 10 years | 95% increasing to 100% over 10 years | 97% increasing to 100% over 10 years |
| Initial secondary GER | 14% | 36% | 65% |
| Unit cost ratio of secondary to primary | 3.6 | 3.6 | 2.0 |
| **Primary** | | | |
| Primary entry rate | 70% | 110% | 110% |
| Repetition | 25% | 15% | 5% |
| Promotion | 66% | 77% | 90% |
| Drop-out | 9% | 8% | 5% |
| Pupil/teacher ratio | 50 | 36 | 32 |
| Teacher attrition | 10% | 10% | 10% |
| **Secondary** | | | |
| Secondary transition rate | 50% increasing to 100% over 10 years | 60% increasing to 100% over 10 years | 80% increasing to 100% over 10 years |
| Repetition | 15% | 10% | 5% |
| Promotion | 65% | 8% | 90% |
| Drop-out | 15% | 10% | 5% |
| Pupil/teacher ratio | 28 | 22 | 19 |
| Teacher attrition | 10% | 10% | 10% |

In the case of Simulation 1, it is assumed that the GER1 will be increased to reach 100 per cent over the next 10 years, implying that enough places will be made available for the relevant primary age group. This has already been achieved in the other simulations. It is consistent with the widespread acceptance of Education for All policy. It is further assumed that the transition rates into lower secondary are increased over 10 years to reach 100 per cent to ascertain what the effect of this would be on GER2s and costs.

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The resulting changes in GER1 and GER2, and of primary and secondary recurrent expenditure, are shown below. *Charts 3.1* and *3.2* relate to Simulation 1 (Low GER1 and Low GER2 countries), *Charts 3.3* and *3.4* relate to Simulation 2 (High GER1 and Low GER2) and *Charts 3.5* and *3.6* relate to Simulation 3 (High GER1 and Medium GER2).

Simulation 1 shows primary GERs reaching 100 per cent after about 10 years and secondary GERs climbing to exceed 60 per cent after 15 years. After six years, the costs of secondary schooling exceed those of the primary system. The costs of this rate of expansion in access are clearly unsustainable. Total recurrent expenditure for primary and secondary would have to multiply by more than four times in real terms. If economic growth averaged an optimistic 3 per cent, and the education budget increased at this rate, the allocation for education would grow by only 50 per cent.

In Simulation 2, secondary GERs reach 80 per cent after 15 years. At the end of this period, expenditure would have to increase by 2.5 times in real terms. This also seems unrealistic. With 3 per cent real growth in the education budget, there would still be a shortfall in resources available, equivalent to the cost of the whole system in the base year. In this simulation, the cost of the secondary-school system is always more than that of primary, since the smaller numbers enrolled at secondary are more than compensated for by the higher unit costs.

Simulation 3 illustrates situations which are likely to be financially sustainable. In this case, GER2 reaches 80 per cent in less than 10 years. At this point, the increase in expenditure needed would only be about 1.5 times current levels. The secondary-school system is more expensive in total throughout the projection period, but the difference is much less than in Simulation 2. If economic growth was of the order of 3 per cent and the education budget remained the same proportion of public expenditure and GNP, the budget would balance.

Chart 3.1 Simulation 1: Gross enrolment rates at primary and secondary

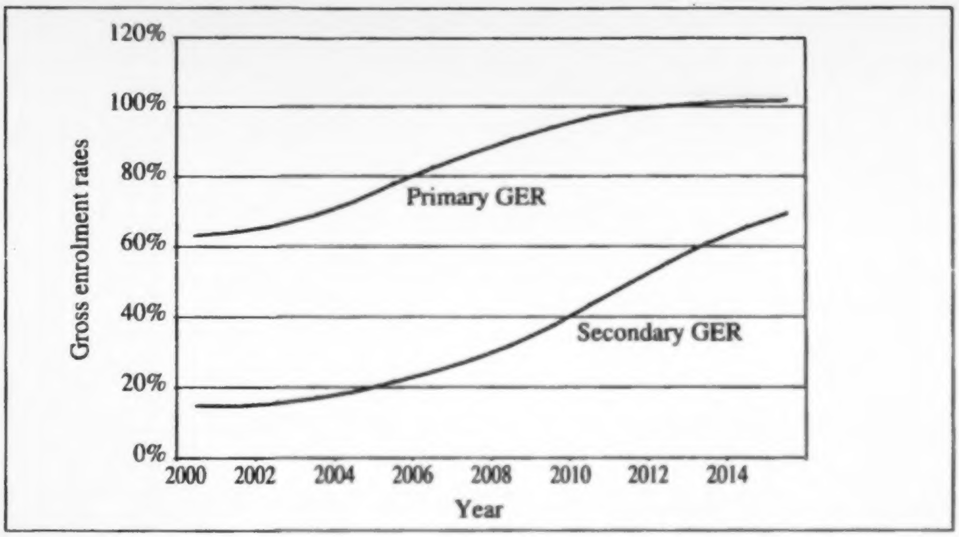


Chart 3.2 Simulation 1: Recurrent costs for primary and secondary as proportion of total base-year costs

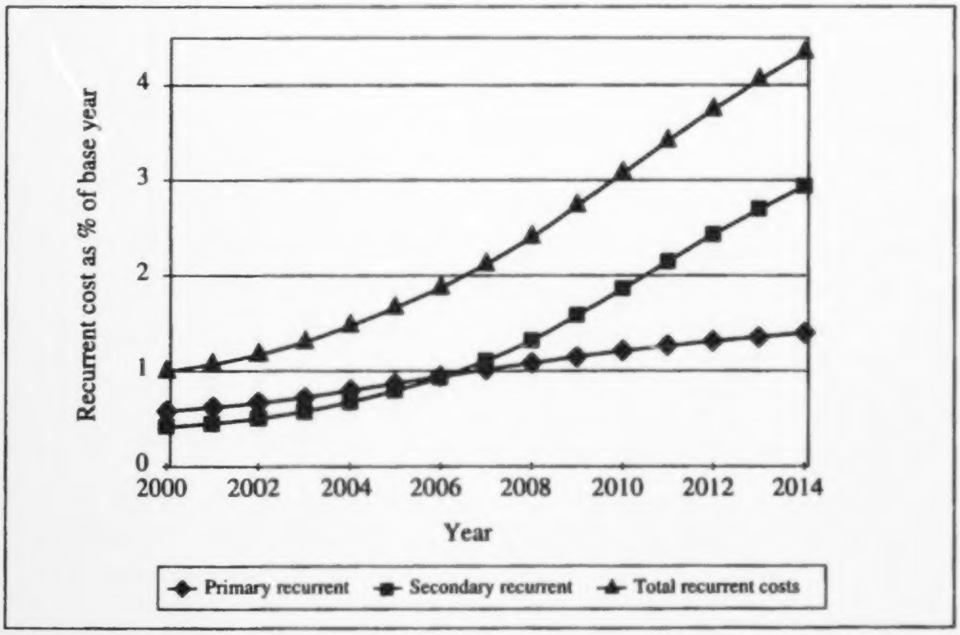


Chart 3.3 Simulation 2: Gross enrolment rates at primary and secondary

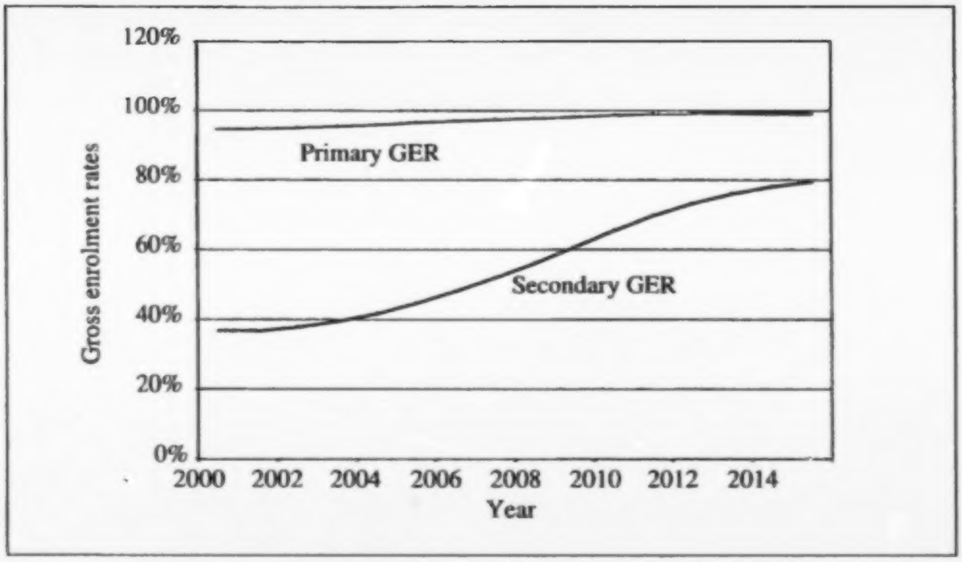


Chart 3.4 Simulation 2: Recurrent costs for primary and secondary as proportion of total base-year costs

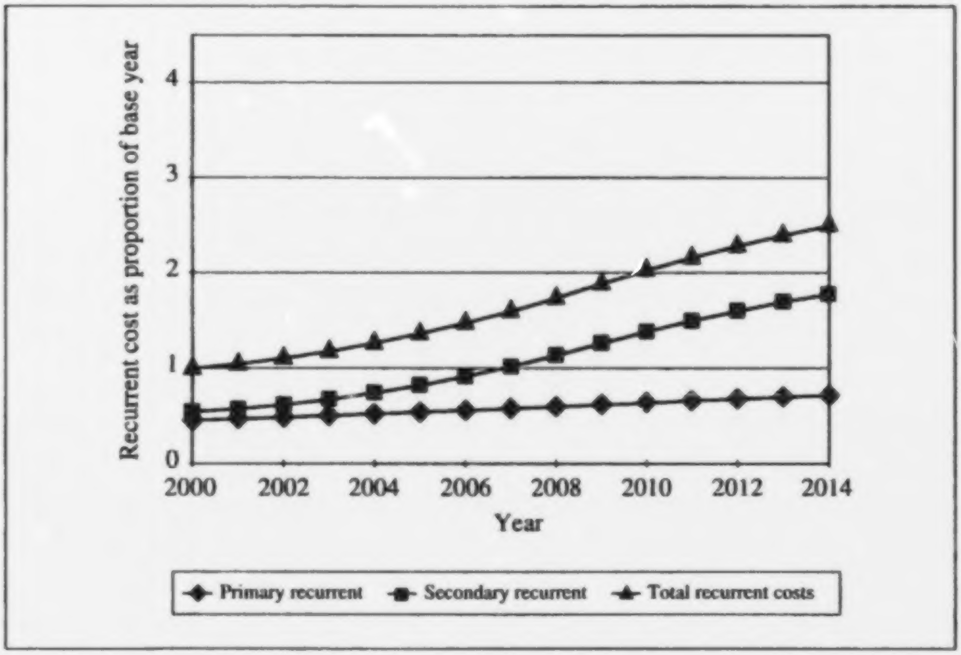


Chart 3.5 Simulation 3: Gross enrolment rates at primary and secondary

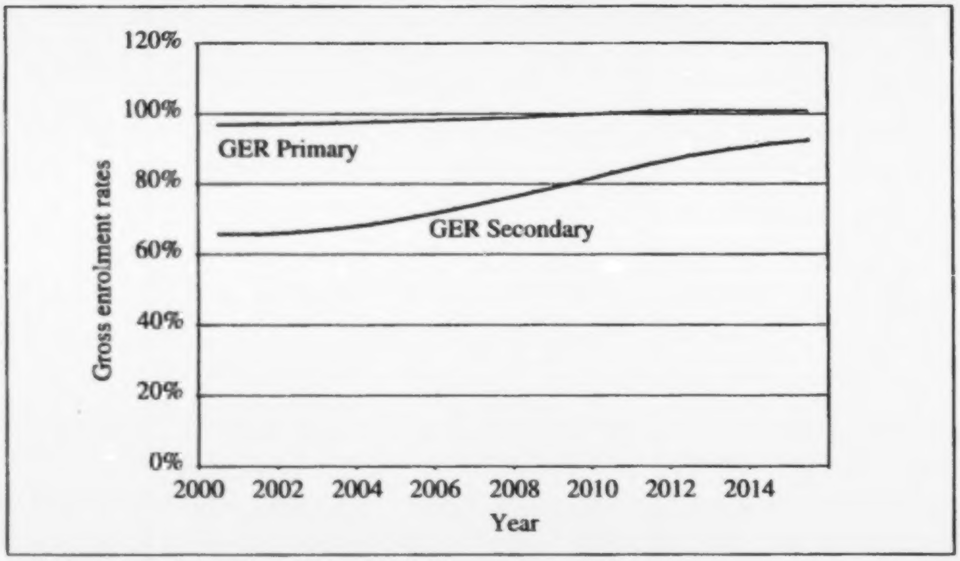
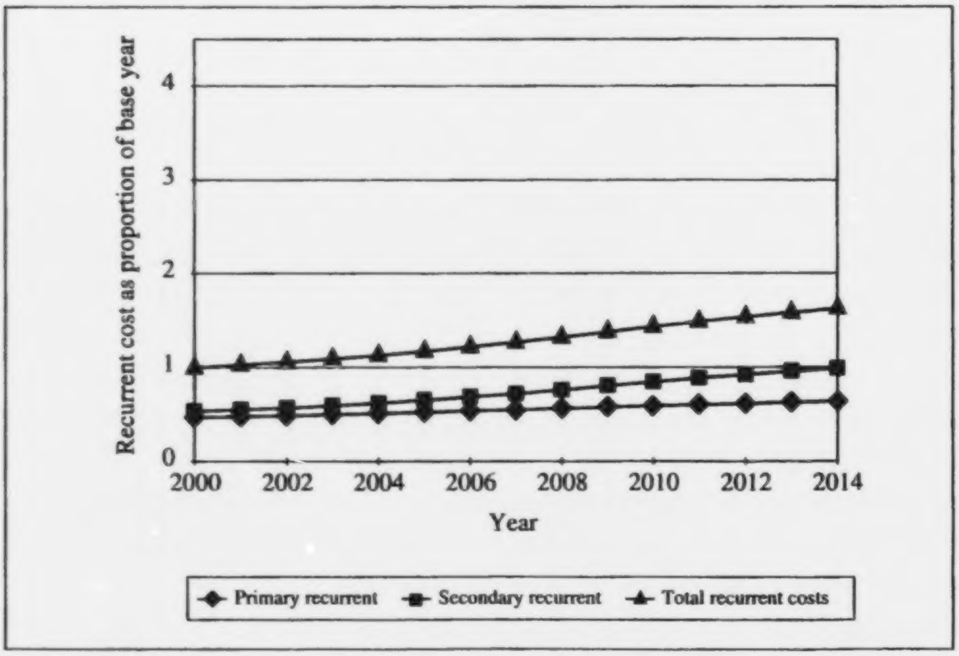


Chart 3.6 Simulation 3: Recurrent costs for primary and secondary as proportion of total base-year costs



It is evident that the more favourable starting conditions in Simulation 3 – lower population growth and relatively lower unit costs of secondary-school places – allow projected outcomes that provide fairly universal secondary participation at sustainable cost. The question is what might be done to allow countries with the characteristics of Simulations 1 and 2 to improve participation at secondary at realistic cost levels? The cases are different, since Simulation 1 has the additional burden of the need to increase gross enrolment rates at primary to more acceptable levels.

Simulation 1 was re-run maintaining a commitment to reach GER1 = 100 per cent over 10 years, restricting the increase in the transition rate from primary to secondary to an upper limit of 60 per cent after 10 years. The result was that recurrent expenditure on primary and secondary would have to increase by a factor of three. GER2 would climb slowly to over 30 per cent after 10 years as a result of the changes in the primary-completing cohort, arising from reduced repetition and drop-out. If the target for GER1 is reduced to 90 per cent over 15 years, the increase in recurrent costs is 2.7 times, and GER2 remains below 30 per cent after 10 years.

If the unit costs of secondary relative to primary were reduced from the baseline value of 3.6:1 to a ratio of 2:1, this would not have much effect in Simulation 1. The multiplier for overall costs drops to about 2.7 to 2.5 times current costs for the same gains in GER1 and GER2. The reason is that secondary-school enrolments are so low that they account for a small proportion of total school recurrent costs. These costs remain above the level that would seem achievable, except in countries where the proportion of GNP allocated to education is very low.

A similar series of changes were modelled using Simulation 2. If the baseline version is modified to restrict the transition rate into secondary to an upper limit of 80 per cent after 10 years, costs increase by 2.2 times over the full projection period, and GER2 climbs to nearly 65 per cent. If unit costs in this system developed in such a way that the ratio of secondary to primary fell to 2:1, and GER1 = 100 per cent were retained as a target, the result would fall to twice current costs.

In the long run, the rate of population growth in the school-age cohort will be the underlying determinant of growth in expenditure. It is possible this may fall. A demographic transition has been occurring in many developing countries outside Africa. This has seen growth rates fall below 2 per cent on a declining trend and has dramatically reduced dependency rates. The effects of this can be projected. Population growth was assumed to fall from 3 per cent to about 1.5 per cent over the next 15 years for Simulations 1 and 2.

After reducing the GER1 target to 90 per cent and the secondary/primary unit-cost ratio to 2:1, as described above, the result for Simulation 1 is that the increase in expenditure needed falls to 2.3 times current expenditure. In Simulation 2, the effect is also marginal, reducing increased costs to just over 1.9:1. The main reason for the lack of impact of this change is that the effects of demographic transition are felt over the long term. In Simulations 1 and 2, the effects of increasing GER1 and GER2 are dominant. As these approach high levels, the effects of population growth will become the dominant influence on growth in expenditure. This occurs largely beyond the projection period.

If population growth fell rapidly there would be a greater effect on cost. If it is assumed that cohort growth falls from 3 per cent to 1 per cent in the first five years, then the effect on Simulation 1 is that costs fall from 2.3 times to twice current costs. In Simulation 2, the effect is a fall to 1.7 times current costs.

It is clear that countries with the characteristics of Simulation 1 face difficult choices and are those that are most in need of external assistance. Even with such assistance their task is formidable. Sharply defined choices have to be made. These include those concerned with setting achievable targets for GER2, judging at which point to trade off the rate of achievement of GER1 100 per cent against the need to increase GER2 from exceptionally low levels; re-examining whether unit costs at secondary can be reduced to allow expansion; and finding ways of increasing internal efficiency, especially through reductions in drop-out.

The situation in countries resembling Simulation 2 is more optimistic. Here, GER1 = 100 per cent has nearly been achieved and net enrolment rates are likely to continue to improve as a result of reductions in repetition and drop-out. If a more modest target for GER2 were adopted than GER2 = 100 per cent – say an increase from 36 per cent to 70 per cent after 15 years – and unit costs at secondary fell to twice primary unit costs, the growth in total educational expenditure needed would be adjusted downwards to less than twice current levels. This could be in reach if economic growth is sustained and secondary investment is emphasized. However, in many sub-Saharan African countries, growth in GNP per capita has been negative in the 1990s (see below). The outcomes from these simulations need to be adjusted to recognize this if it is thought that growth will remain elusive.

## 2. An overview of the challenge

Some consolidation of the analysis is now needed. Participation rates in secondary schooling are determined by the extent to which governments wish to prioritize investment at this level and by the extent to which they can. The basic parameters related to public expenditure which determine participation (as measured by GER2) are well known (Colclough with Lewin, 1993:45). They are:

- Public expenditure on secondary education as a percentage of GNP (**x**);
- Public recurrent expenditure on secondary schooling per student as a percentage of GNP per capita (**c**);
- The proportion of the population of secondary school age (**a**);
- Thus **GER2= x/ac**.

The GER2 which is actually achieved will also depend on the proportion of GNP that private households spend on secondary schooling and its interaction with public costs. This obviously varies widely, and is impossible to incorporate into general modelling since no robust data are available across countries, as noted above. If it is assumed that the cost of most school places is largely borne by the state and that private household expenditure is largely allocated to other costs (additional private tuition, travel and food, additional learning materials, etc.), then this will not have a significant effect on the basic equation. Where fees and private contributions are a significant source of finance for school places this will not be true. In the absence of any alternative, and because it is likely to be true that the first set of assumptions holds in the majority of countries with low secondary GERs, we can proceed using the basic relationship.

The values of GER2, **x**, **c**, and **a** are shown below in *Tables 3.1* and *3.2* for countries with GER2 less than 40 per cent and between 40 per cent and 70 per cent. We can note that low-GER2 countries have an average GER2 of only 22 per cent. Public expenditure on secondary education (**x**) averages 0.86 per cent of GNP compared to 1.41 per cent in mid-range GER2 countries. Costs per secondary student as a percentage of GNP per capita (**c**) are typically twice as much in low-GER2 countries than in mid-GER2 countries. However, the proportion of secondary school age children in the population is similar between low- and mid-GER2 countries. It is clear that in some cases low GER2 is associated with both low levels of allocation and high unit costs. There are also examples where one or the other is the dominant reason for low GER2. Chapter 11 explores the implications for policy of different combinations of the parameters that determine GER2.

Table 3.1 GER2, x, c, and a for countries with GER2 below 40 per cent

| | GER2<br>Gross enrolment rate at secondary | x<br>Public expenditure on secondary as % of GNP | c<br>Public recurrent expenditure on secondary per student as % of GNP per capita | a<br>The proportion of the population of secondary-school age |
|---|---|---|---|---|
| Malawi | 6 | 0.77 | 145 | 0.09 |
| Burundi | 7 | 0.66 | 69 | 0.14 |
| Mali | 9 | 0.40 | 35 | 0.13 |
| Chad | 9 | 0.44 | 33 | 0.15 |
| Ethiopia | 11 | 0.84 | 62 | 0.12 |
| Guinea | 12 | 0.68 | 38 | 0.15 |
| Mauritania | 15 | 1.24 | 59 | 0.14 |
| Benin | 16 | 0.54 | 22 | 0.15 |
| Comoros | 19 | 1.10 | 39 | 0.15 |
| Vanuatu | 20 | 1.39 | 49 | 0.14 |
| Gambia | 22 | 0.80 | 28 | 0.13 |
| Kenya | 24 | 1.15 | 47 | 0.10 |
| Guatemala | 25 | 0.17 | 5 | 0.14 |
| Lao PDR | 25 | 0.79 | 25 | 0.13 |
| Togo | 27 | 1.77 | 42 | 0.16 |
| Zambia | 28 | 0.29 | 9 | 0.12 |
| Lesotho | 28 | 1.57 | 51 | 0.11 |
| Myanmar | 30 | 0.39 | 10 | 0.13 |
| El Salvador | 32 | 0.13 | 5 | 0.08 |
| Honduras | 32 | 0.78 | 22 | 0.11 |
| Nepal | 37 | 0.47 | 12 | 0.11 |
| Paraguay | 38 | 0.54 | 11 | 0.13 |
| Morocco | 39 | 2.74 | 51 | 0.14 |
| Average | 22 | 0.86 | 38 | 0.13 |

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Table 3.2 GER2, x, c, and a for countries with GER2 between 40 and 70 per cent

| | GER2 Gross enrolment rate at secondary | x Public expenditure on secondary as % of GNP | c Public recurrent expenditure on secondary per student as % of GNP per capita | a The proportion of the population of secondary-school age |
|---|---|---|---|---|
| Dominican Republic | 41 | 0.17 | 5 | 0.08 |
| Zimbabwe | 44 | 2.22 | 39 | 0.13 |
| Syria | 44 | 1.14 | 17 | 0.15 |
| Belize | 49 | 1.40 | 29 | 0.10 |
| India | 49 | 0.94 | 13 | 0.15 |
| Maldives | 49 | 1.81 | 24 | 0.15 |
| Costa Rica | 50 | 0.99 | 19 | 0.10 |
| Ecuador | 50 | 1.01 | 15 | 0.13 |
| Swaziland | 52 | 1.79 | 29 | 0.12 |
| Thailand | 55 | 0.72 | 11 | 0.12 |
| Turkey | 56 | 0.69 | 9 | 0.14 |
| Malaysia | 57 | 1.77 | 22 | 0.14 |
| Mexico | 58 | 1.59 | 20 | 0.14 |
| Mongolia | 59 | 3.25 | 34 | 0.16 |
| Tunisia | 61 | 2.17 | 23 | 0.15 |
| Namibia | 62 | 2.95 | 44 | 0.11 |
| Jamaica | 66 | 2.39 | 25 | 0.15 |
| Oman | 66 | 2.02 | 23 | 0.13 |
| Colombia | 67 | 0.93 | 11 | 0.13 |
| China | 67 | 0.74 | 14 | 0.08 |
| Panama | 68 | 1.08 | 13 | 0.12 |
| Chile | 69 | 0.43 | 9 | 0.07 |
| Iran | 69 | 1.33 | 12 | 0.16 |
| Trinidad and Tobago | 72 | 1.37 | 17 | 0.11 |
| Hong Kong | 75 | 0.93 | 12 | 0.10 |
| Argentina | 77 | 0.90 | 12 | 0.10 |
| Average | 59 | 1.41 | 19 | 0.12 |

It is possible to estimate what would be the costs of achieving higher levels of GER2 in different countries using a simple model based on existing unit costs and values for GER2. The procedure is as follows:

since $\mathrm{GER2} = x/ac$
then $x = \mathrm{GER2}(ac)$

Thus, **x** (the proportion of GNP spent on secondary schooling) can be calculated from knowledge of GER2 (the secondary GER), **a** (the proportion of the population of secondary-school age) and **c** (public recurrent expenditure on secondary schooling per student as a percentage of GNP per capita). This will give the current value of **x** needed to support the existing secondary gross enrolment rate. We can then calculate what value of **x** would be needed if secondary gross enrolment rates were to be targeted at 60 per cent, 80 per cent or 100 per cent by multiplying the current value of x by the ratio of target to current GER2. The result will be a series of values for x indicating what levels of allocation would be needed to reach the target enrolment rates without changes in the cost structure of secondary provision. This gives an indication of the magnitude of the challenge faced by different countries.

*Table 3.3* shows the results of undertaking these calculations on the data available for African countries with GER2 below 70 per cent. Other regions are included in *Tables 3.4* and *3.5*.

## Table 3.3 Expenditure on secondary education as a proportion of GNP needed to reach enrolment targets – Africa

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10[3] |
|---|---|---|---|---|---|---|---|---|---|---|
| | GER1 % | GER2 % | Population '000 | GNP/ capita 1995 US$ | Education expenditure as % GNP 1995 | x= GER2 (ac) | % GNP needed for GER2 60 | % GNP needed for GER2 80 | % GNP needed for GER2 100 | % GNP needed for GER1 100 |
| Tanzania | 67 | 5 | 30,026 | 120 | | | | | | |
| Malawi | 135 | 6 | 9,673 | 170 | 5.7 | 0.8 | 7.7 | 10.2 | 12.8 | 2.7 |
| Burundi | 70 | 7 | 6,064 | 160 | 2.8 | 0.7 | 5.7 | 7.6 | 9.5 | 2.0 |
| Chad | 55 | 9 | 6,335 | 180 | 2.2 | 0.4 | 2.9 | 3.9 | 4.8 | 1.6 |
| Mali | 32 | 9 | 10,795 | 250 | 2.2 | 0.4 | 2.7 | 3.5 | 4.4 | 2.7 |
| Ethiopia | 31 | 11 | 56,404 | 100 | 4.7 | 0.8 | 4.6 | 6.1 | 7.6 | 5.7 |
| Guinea | 48 | 12 | 7,349 | 550 | 1.8 | 0.7 | 3.4 | 4.6 | 5.7 | 1.8 |
| Mauritania | 78 | 15 | 2,274 | 460 | 5.0 | 1.2 | 5.0 | 6.6 | 8.3 | 1.9 |
| Benin | 72 | 16 | 5,409 | 370 | 3.1 | 0.5 | 2.0 | 2.7 | 3.4 | 2.0 |
| Comoros | 78 | 19 | 612 | 470 | 3.9 | 1.1 | 3.5 | 4.6 | 5.8 | 1.3 |
| Gambia | 73 | 22 | 1,111 | 320 | 5.5 | 0.8 | 2.2 | 2.9 | 3.7 | 1.7 |
| Kenya | 85 | 24 | 27,150 | 280 | 7.4 | 1.1 | 2.9 | 3.8 | 4.8 | 3.6 |
| Togo | 118 | 27 | 4,085 | 310 | 5.6 | 1.8 | 3.9 | 5.2 | 6.5 | 2.0 |
| Lesotho | 99 | 28 | 2,027 | 770 | 5.9 | 1.6 | 3.4 | 4.5 | 5.6 | 2.6 |
| Zambia | 89 | 28 | 8,081 | 400 | 1.8 | 0.3 | 0.6 | 0.8 | 1.0 | 0.8 |
| Morocco | 83 | 39 | 26,524 | 1,110 | 5.6 | 2.7 | 4.2 | 5.6 | 7.0 | 1.7 |
| Zimbabwe | 116 | 44 | 11,190 | 540 | 8.5 | 2.2 | 3.0 | 4.0 | 5.1 | 4.9 |
| Swaziland | 122 | 52 | 857 | 1,170 | 8.1 | 1.8 | 2.1 | 2.8 | 3.5 | 2.2 |
| Tunisia | 116 | 61 | 8,987 | 1,820 | 6.8 | 2.2 | 2.1 | 2.8 | 3.5 | 2.5 |
| Namibia | 133 | 62 | 1,536 | 2,000 | 9.4 | 2.9 | 2.9 | 3.8 | 4.8 | 4.1 |
| Average[4] | 85.9 | 28.2 | | 743.2 | 5.8 | 1.4 | 3.8 | 5.1 | 6.3 | 2.9 |

[3] Column 10 represents the proportion of GNP that needs to be allocated to achieve GER1 of 100 per cent. In cases where GER1 = 100 per cent has already been achieved, the proportion needed to sustain the current GER has been substituted for the calculated value. If this adjustment were not included, the values for cases of GER greater than 100 would be less.

[4] Here and elsewhere averages are unweighted unless otherwise stated.

Table 3.4 **Expenditure on secondary education as a proportion of GNP needed to reach enrolment targets – Central America and the Caribbean and South America**

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| | GER1 % | GER2 % | Population '000 | GNP/ capita 1995 US$ | Education expenditure as % GNP 1995 | x= GER2 (ac) | % GNP needed for GER2 60 | % GNP needed for GER2 80 | % GNP needed for GER2 100 | % GNP needed for GER1 100 |
| Guatemala | 84 | 25 | 10,621 | 1,340 | 1.7 | 0.2 | 0.4 | 0.6 | 0.7 | 1.0 |
| El Salvador | 88 | 32 | 5,662 | 1,610 | 2.2 | 0.1 | 0.2 | 0.3 | 0.4 | 1.3 |
| Honduras | 112 | 32 | 5,654 | 600 | 3.9 | 0.8 | 1.5 | 2.0 | 2.4 | 1.8 |
| Dominican Republic | 103 | 41 | 7,823 | 1,460 | 1.9 | 0.2 | 0.2 | 0.3 | 0.4 | 0.7 |
| Belize | 121 | 49 | 213 | 2,630 | 6.1 | 1.4 | 1.7 | 2.3 | 2.9 | 2.8 |
| Costa Rica | 107 | 50 | 3,424 | 2,610 | 4.5 | 1.0 | 1.2 | 1.6 | 2.0 | 1.5 |
| Mexico | 115 | 58 | 91,145 | 3,320 | 5.3 | 1.6 | 1.6 | 2.2 | 2.7 | 1.9 |
| Jamaica | 109 | 66 | 2,468 | 1,510 | 8.2 | 2.4 | 2.2 | 2.9 | 3.6 | 1.3 |
| Panama | 106 | 68 | 2,631 | 2,750 | 5.2 | 1.1 | 0.9 | 1.3 | 1.6 | 1.4 |
| Trinidad and Tobago | 96 | 72 | 1,287 | 3,770 | 4.5 | 1.4 | 1.1 | 1.5 | 1.9 | 1.6 |
| Paraguay | 109 | 38 | 4,828 | 1,690 | 2.9 | 0.5 | 0.9 | 1.1 | 1.4 | 1.2 |
| Ecuador | 109 | 50 | 11,460 | 1,390 | 3.4 | 1.0 | 1.2 | 1.6 | 2.0 | 0.9 |
| Colombia | 114 | 67 | 35,814 | 1,910 | 3.5 | 0.9 | 0.8 | 1.1 | 1.4 | 0.9 |
| Chile | 99 | 69 | 14,210 | 4,160 | 2.9 | 0.4 | 0.4 | 0.5 | 0.6 | 1.5 |
| Argentina | 113 | 77 | 34,768 | 8,030 | 4.5 | 0.9 | 0.7 | 0.9 | 1.2 | 1.4 |
| Average | 105.9 | 53.4 | | 2,436 | 4.1 | 0.92 | 1.01 | 1.35 | 1.68 | 1.42 |

Table 3.5 Expenditure on secondary education as a proportion of GNP needed to reach enrolment targets – Asia and Oceania

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| | GER1 % | GER2 % | Population '000 | GNP/ capita 1995 US$ | Education expenditure as % GNP 1995 | x= GER2 (ac) | % GNP needed for GER2 60 | % GNP needed for GER2 80 | % GNP needed for GER2 100 | % GNP needed for GER1 100 |
| Lao PDR | 107 | 25 | 4,882 | 350 | 2.4 | 0.8 | 1.9 | 2.5 | 3.2 | 0.7 |
| Myanmar | 103 | 30 | 45,106 | | 1.3 | 0.4 | 0.8 | 1.0 | 1.3 | 0.5 |
| Nepal | 110 | 37 | 21,456 | 200 | 2.9 | 0.5 | 0.8 | 1.0 | 1.3 | 1.1 |
| Syrian AR | 101 | 44 | 14,203 | 1,120 | | 1.1 | 1.6 | 2.1 | 2.6 | 1.5 |
| Maldives | 134 | 49 | 254 | 990 | 8.4 | 1.8 | 2.2 | 2.9 | 3.7 | 2.4 |
| India | 100 | 49 | 929,005 | 340 | 3.5 | 0.9 | 1.1 | 1.5 | 1.9 | 1.3 |
| Thailand | 87 | 55 | 58,242 | 2,740 | 4.2 | 0.7 | 0.8 | 1.1 | 1.3 | 1.3 |
| Turkey | 105 | 56 | 60,838 | 2,780 | 3.4 | 0.7 | 0.7 | 1.0 | 1.2 | 1.3 |
| Malaysia | 91 | 57 | 20,140 | 3,890 | 5.3 | 1.8 | 1.9 | 2.5 | 3.1 | 1.4 |
| Mongolia | 88 | 59 | 2,463 | 310 | 5.6 | 3.2 | 3.3 | 4.4 | 5.5 | 1.1 |
| Oman | 80 | 66 | 2,207 | 4,820 | 4.6 | 2.0 | 1.8 | 2.4 | 3.1 | 2.3 |
| China | 118 | 67 | 1,220,224 | 620 | 2.3 | 0.7 | 0.7 | 0.9 | 1.1 | 0.5 |
| Iran | 99 | 69 | 68,365 | | 4.0 | 1.3 | 1.2 | 1.5 | 1.9 | 1.0 |
| Hong Kong | 96 | 75 | 6,123 | 22,990 | 2.8 | 0.9 | 0.7 | 1.0 | 1.2 | 0.5 |
| Vanuatu | 106 | 20 | 169 | 1200 | 4.9 | 1.4 | 4.2 | 5.6 | 7.0 | 2.2 |
| Average | 99.9 | 51.4 | | 2,912 | 4.16 | 1.15 | 1.48 | 1.97 | 2.46 | 1.66 |

*Tables 3.3*, *3.4* and *3.5* are illustrative of the financial challenge. The results clearly have to be approached with caution, since there are uncertainties in the basic data used to create the key variables and compute the proportion of GNP needed to finance different levels of secondary enrolment. The averages used for unit costs may not be reliable or an accurate indication of the cost of additional places. Where private finance is a significant element in total costs at secondary level, the calculations assume that the cost of increased participation would continue to be shared in the same ways as is currently the case. This, of course, may not be true if expanded access attracted those who were less willing or less able to pay substantial private costs.

Nevertheless, the results are instructive and provocative. To simplify matters this discussion focuses on *Table 3.3* – the African case. Column 6 shows that average values of x are currently about 1.4 per cent GNP. They are often below 1 per cent for the lowest GER2 countries. It is immediately clear from column 7 that the proportions of GNP which would have to be allocated to secondary schooling to reach a target of GER2 of 60 per cent are high, and in many cases unlikely to be feasible. The average amounts needed are 3.8 per cent of GNP across all the countries. If targets are set at 80 per cent and 100 per cent (columns 8 and 9), the average increases to 5.1 per cent and 6.3 per cent.

Column 10 shows the proportion of GNP needed to achieve GER1 = 100 per cent, which in cases where GER1 is below 100 will represent an increase over current levels. If these values are combined with those in columns 7, 8 or 9 the sum will be the total allocation needed for the school system. Clearly there are a number of countries where the sum of columns 7 and 10 exceeds the current level of educational spending as a proportion of GNP (column 5). If this is low, there may be scope for increased allocation. If this is high, then expansion is clearly cost-constrained.

The averages cited are probably underestimates. In the African data set, several of the countries with the lowest GER2s have been excluded as there are no data. Their inclusion would raise the average amounts needed substantially. Second, the proportion of GNP actually needed to achieve targets will depend partly on growth in GNP. If per capita GNP declines, the estimates of the proportions needed would need to be increased.

GNP per capita has not been growing in much of sub-Saharan Africa. For the countries on which there are data, the average change in GNP per capita from 1990-1996 was -0.5 per cent. *Charts 3.7* and *3.8* show how GNP per capita growth rates are associated with 1995 GERs at primary and secondary. *Chart 3.9* shows how GER2s have changed between 1985 and 1995 in relation to GNP per capita.

Chart 3.7 GER1 1995 by growth in GNP per capita 1990-1996 – Africa

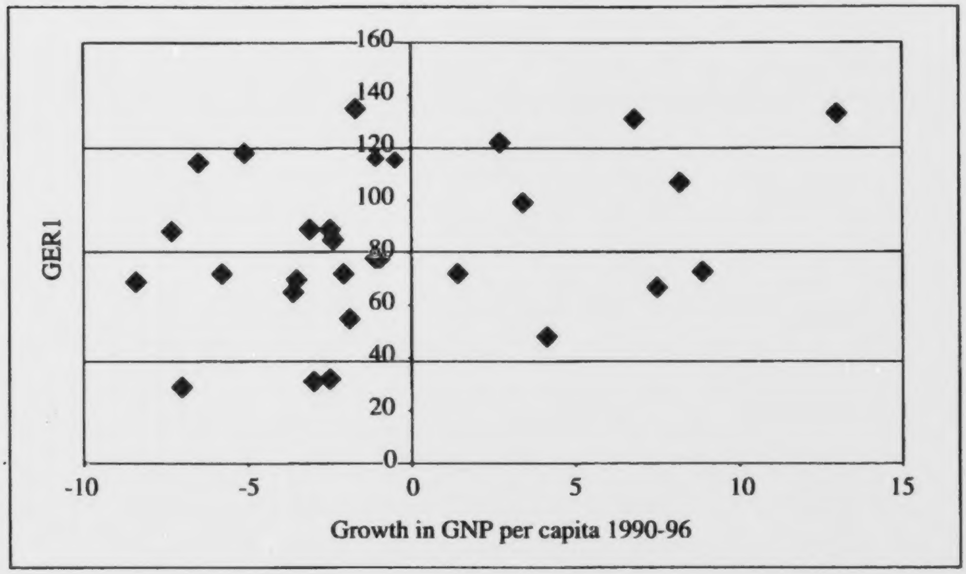


Chart 3.8 GER2 1995 by growth in GNP per capita 1990-1996 – Africa

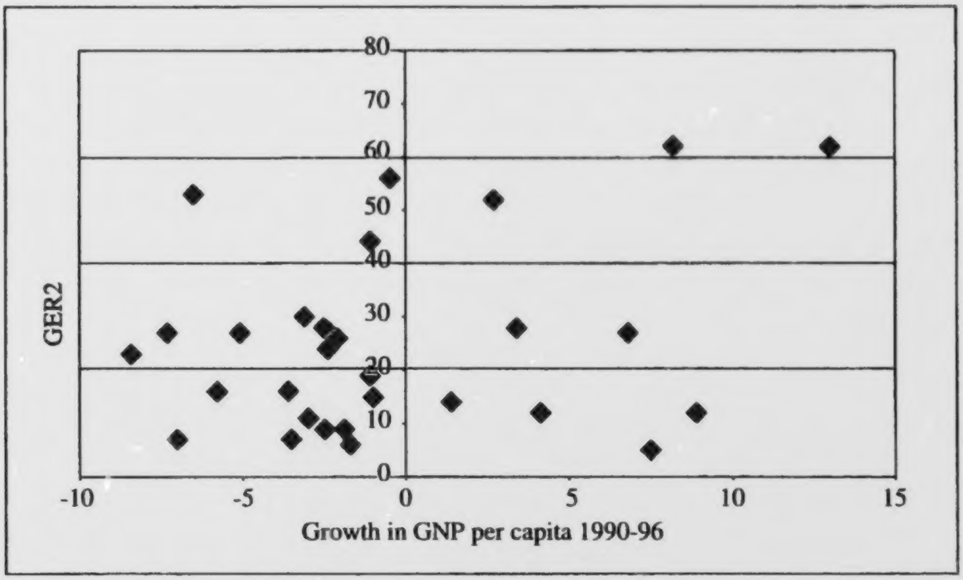
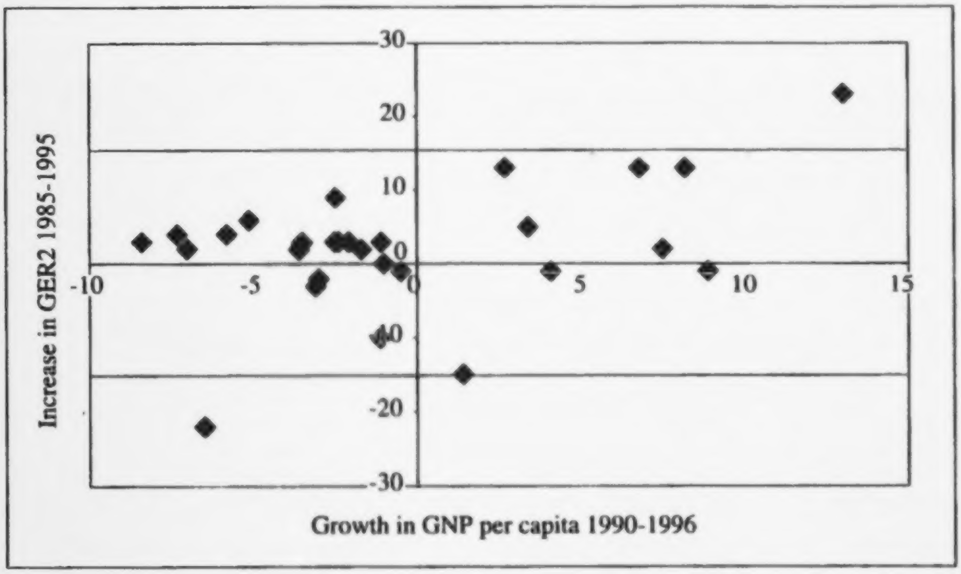


Chart 3.9 Increase in GER2 1985-1995 by growth in GNP per capita 1990-1996



In *Chart 3.7*, nine out of 20 countries with negative growth have GER1s over 80 per cent. *Chart 3.8* indicates that 17 out of the 20 have GER2s below 30 per cent. It also shows that growth in GNP per capita has been disappointing and below that assumed initially in the baseline projections (3 per cent). This worsens the prognosis for the countries with negative growth, should the future repeat the past. It means that the proportion of GNP which would have to be allocated to increase secondary participation is greater than the estimates in *Table 3.1* for the countries where GNP per capita is likely to continue to decline. *Chart 3.9* confirms that increases in GER2 have been very modest, especially in countries where GNP per capita has shrunk.

## 3. Concluding remarks

Clearly there are a number of limitations to the analysis presented. These include uncertainties in the population data used to calculate the proportion of the population of school age, the difficulty of establishing GNP and the proportion allocated to secondary education, the reliability of estimates of unit cost at secondary level, and the margin of error on claimed GER2s.

Nevertheless, this first-order analysis is illustrative. It leads to the conclusion that there are no circumstances under which it is conceivable that many African countries will reach GER2 levels of 80 per cent or more with current cost structures; GER2 = 60 per cent is also beyond the reach of many. The proportions of GNP that would need to be allocated are unrealistic, especially if coupled with a substantial burden arising from the need to reach GER1 = 100 per cent. Though external budgetary assistance may be helpful in the short term to those countries within sight of a feasible target, it may not lead to sustainable outcomes without changes in the structure of financing secondary schools.

However, the simulations suggest that progress can be made if due consideration is given to opportunities to increase internal efficiency and re-examine critical cost drivers. First, the targets for increases in participation (GER2) need to be tailored closely to current status, and available domestic and international resources. This could reduce the costs in terms of the proportion of GNP needed below the levels indicated in *Table 3.1*. It would make increased GER2 more affordable at the cost of lower achieved levels of GER2.

Second, in some cases the question has to be addressed as to whether targets for primary gross enrolment rates should be modified. The most obvious way of approaching this is to lengthen the time scale over which GER1 = 100 per cent might be achieved without abandoning the target. This would allow secondary GERs to grow more quickly than would otherwise be the case. This is a question that should not be avoided, however the presentation of its resolution is handled in specific cases. There are competing claims on public investment in education. There are likely to be different developmental benefits and costs associated with a different prioritization of alternatives. It is also likely to be the case that the marginal cost of further increases in primary enrolment in some countries may increase as GER1 = 100 per cent or greater is approached, especially if drop-out reduces. Enrolment in the most remote sites and of those pupils least convinced of the benefits of schooling may be the most expensive to provide. If this investment is at the cost of increased secondary GERs, the balance of net social and economic benefits needs to be assessed.

Third, there is scope to re-examine unit costs and the proportion of public expenditure allocated to secondary schools. The latter requires judgements about what are appropriate and sustainable levels given the status and nature of financing of educational services at all levels. High unit and total costs at tertiary level may invite scrutiny to establish the extent to which they are justified. In some cases tertiary unit costs may be more than 50 times greater than school costs. There are examples of countries which allocate more than 35 per cent of the education budget to tertiary institutions with very low participation rates. However, it should be remembered that where tertiary enrolment is small, the amounts that might be released by reducing tertiary subsidies are likely to be marginal to the overall picture of school finance.

Where unit costs at secondary are relatively high, participation could be increased and GER2 raised through reduction of these unit costs. How this can be achieved depends on what the cost drivers are for relatively high unit costs. It has been noted that there is a strong association between higher levels of GER2 and lower ratios of costs between primary and secondary. The arithmetic logic of the situation is obvious. Whether quality can be maintained at an appropriate level as unit costs fall depends on the reasons for high unit costs.

It may be that in some countries there is scope for increasing private contributions to the cost of secondary school places. There is no general analysis that can be offered which can establish the extent to which this is possible. Where the effective demand for secondary schooling is high, income levels are sufficient to provide disposable income and the politics of access to secondary schools permit higher levels of cost recovery, there may be scope to reduce public unit costs without reducing overall unit costs. This should allow an increase in GER2. The prospects for this in the poorest countries with the lowest GER2s, which are most at risk from the effects of recession, seem likely to be limited.

Fourth, external assistance could play a role in easing the financial burden of the transition to high levels of GER2. Sector support for education in partnership with donors and lenders could be directed towards reconfiguring secondary-school systems in ways which would enhance both equity and efficiency. This would only result in sustainable outcomes if unit costs were guided towards levels that could be contained within feasible projections of the domestic resources likely to be available in the future.

Fifth, demographic changes seem likely in a number of the countries with the lowest GER2s. Where HIV infection rates are high and are not checked, attrition amongst teachers will be high and the size of the school-age group may drop. Dependency rates will almost certainly increase and the prospects for economic growth will be severely constrained by attrition in the labour force. It is too early to establish how severe these effects will be, but for some of the worst affected countries this may be the most important constraint on sustaining higher levels of participation in secondary schooling.

We will return to the questions raised by the general analysis presented here in the last chapters of this book. It is now time to move on to consider a series of case studies which have been developed to illuminate problems associated with the financing of secondary schools in different countries at different levels of educational development.

## Chapter IV

# Financing secondary education in Zimbabwe: access, equity and efficiency revisited

*J. Manduvi-Moyo and Keith M. Lewin*[1]

## Introduction

Zimbabwe achieved independence in 1980 and committed itself to universalizing primary education. By 1985 primary gross enrolment rates were over 130 per cent, indicating that this goal had largely been achieved. At the same time, secondary gross enrolment rates climbed from below 15 per cent to about 42 per cent. Thus, despite being a relatively poor African country with a GNP per capita of only US$540 ($2,030 PPP) in 1995, Zimbabwe has managed to achieve and sustain relatively high secondary enrolments, whilst simultaneously providing access to nearly all school-age children to primary schools.

These achievements are all the more impressive given that the total population has been growing at about 2.9 per cent per annum since1980 and that the dependency rate remains high. In 1985, the dependency rate (0-14 year-olds as a percentage of 15-60 year-olds) was 90 per cent; in 1995 it remained above 84 per cent. The gains in participation were achieved over a period where GNP per capita had not grown in real terms. Zimbabwe has maintained a high level of public investment in education – around 8 per cent of GNP and 14 per cent or more of government expenditure. This has helped to provide the resources to support enrolment rates which are high by comparison with many other sub-Saharan African countries. Initially, public resource allocation favoured the primary sector. During the 1980s over 50 per cent of the total investment was allocated to primary schools, and 26 per cent to the secondary-school system. Public costs per student at secondary appear to be less than twice those at primary. This has also contributed to the ability of the Zimbabwe Government to afford relatively high secondary enrolment rates.

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[1] This chapter was originally drafted by J. Manduvi-Moyo in response to a framework developed by K. Lewin. It has been revised and edited and simulations added for inclusion in this book.

It is of interest to explore in more detail the features of the growth in participation in Zimbabwe that have made it possible to reach comparatively high levels of enrolment and to assess the prospects for future gains. This case study is organized in several sections. The first reviews general aspects of the education system and details key features of context, policy, recent growth, current enrolments, automatic promotion and transition rates, pupil/teacher ratios, and school administration. The next section discusses aspects of educational financing in more detail and illustrates how different types of schools are supported, indicating the mechanisms and some of the problems raised by existing patterns of financing. This section concludes with a summary drawing attention to the factors which seem to have been most influential in enhancing participation rates at secondary level. The third section presents the results of a simulation based on data from the Ministry of Education and UNESCO, which are used to explore the financial constraints on growth in participation at secondary. The chapter concludes with some comments on possibilities for the future.

## 1. Development and growth of the education system in Zimbabwe

### *(a) Context*

The pre-independence colonial governments in Zimbabwe introduced and maintained a dual education system which was consistent with their objective of maintaining the political and socio-economic supremacy of a minority white settler community over the majority African population. The separate development policy was based on racial segregation and was designed to favour the white, Asian and Coloured children. Education for these minorities was compulsory and wholly funded by the government. Although the minority Asian and Coloured communities received better treatment than the African population, their status was that of 'honorary whites' for reasons of political expediency and their educational provision lagged behind that available in white schools.

African education was not compulsory. Historically, educational services were left almost entirely in the hands of missionaries, particularly in rural areas. Some farms and mines supported elementary schools for workers from the resources they chose to make available. The government built and maintained a small number of schools in urban centres to cater for children of African workers working and residing in towns. In rural areas the colonial government did not erect school buildings, but did provide salary grants to the missionaries. As a result the African child had very restricted access to education, which was typically of very low quality and conducted under impoverished physical conditions. The African education system was wasteful in that a majority of the few who managed to gain access were unable to complete their schooling. The level of school fees and the vagaries of the school selection system created high rates of repetition and drop-out. Thus, the great majority of African children did not complete the primary-school cycle. Participation in secondary schooling accounted for much less than 10 per cent of the age group.

### *(b) Policy*

After independence in 1980, the Government of Zimbabwe embarked on the process of reforming the dual system of education. It placed particular emphasis on redressing the disparities and inequalities created and maintained by successive colonial governments. The 'catalyst' for this process was the declaration in 1980 by the ruling party (ZANU-PF) that education was a fundamental human right, and a basic need of every child of school-going age and of every adult outside the formal school system. In summary, the new government committed itself to:

- free and universal participation in primary schooling;
- access to secondary schools consistent with financial constraints;
- automatic promotion through to Grade 11 (Form 4);
- more equitable access;
- curriculum development to stress relevance to occupations and livelihoods;
- access to English language;
- the elimination of illiteracy;
- efficient provision that would make the best use of scarce resources.

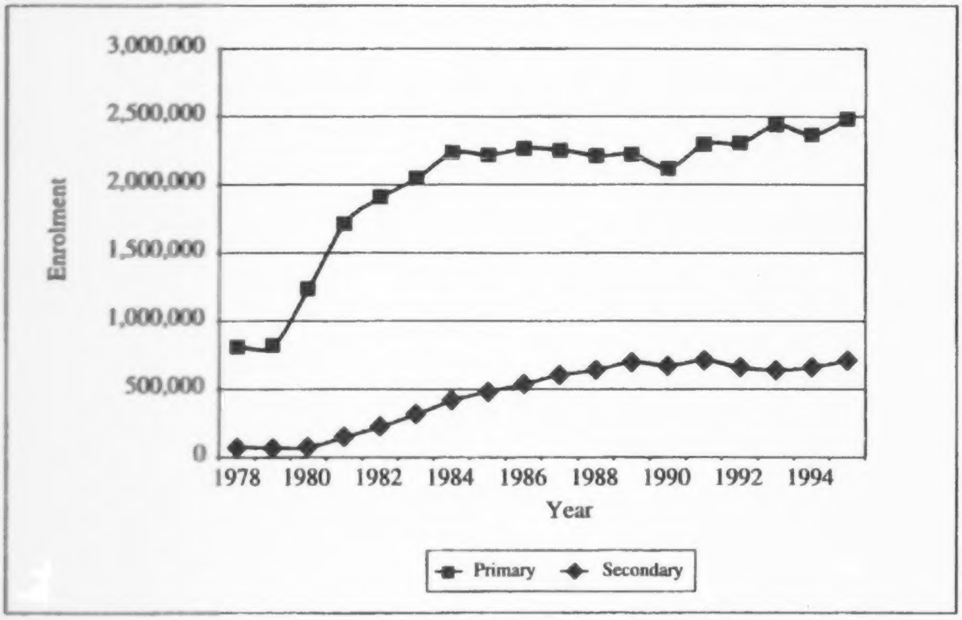
Primary-school provision was declared tuition free. The government agreed to pay salaries of all teachers and contribute to other costs. Secondary schooling was to be made available only to those who could afford it, since constraints on the public budget would not allow more generous support whilst primary was being universalized.

However, in addition to a commitment to be the main provider of secondary education in urban centres throughout the country, the government undertook to build at least one government rural day secondary school in each of the 59 administrative districts. It also agreed to pay building grants-in-aid to all approved non-government secondary schools to cover 5 per cent of the costs. Thus, government took up the responsibility of constructing secondary schools in urban centres, and a limited number of rural day secondary schools in rural districts. This left local authorities and communities with the task of constructing primary schools and non-government rural day secondary schools. These policies formed the framework for increases in enrolments throughout the school system during the 1980s.

### *(c) Growth*

The level of commitment to the reform process was very high and is demonstrated by the quantitative growth of the system. The number of primary schools grew from 3,160 schools in 1980 to 4,630 in 1996, an increase of 47 per cent. Enrolment in primary schools more than doubled from 1,236,000 in 1980 to 2,482,600 in 1996. The number of primary teachers expanded from 28,500 in 1980 to 63,500 in 1995. The highest growth was between 1981 and 1985 with much lower rates in the 1990s as universalization was achieved (see *Chart 4.1*).

Chart 4.1 Enrolment growth primary and secondary 1978-1995



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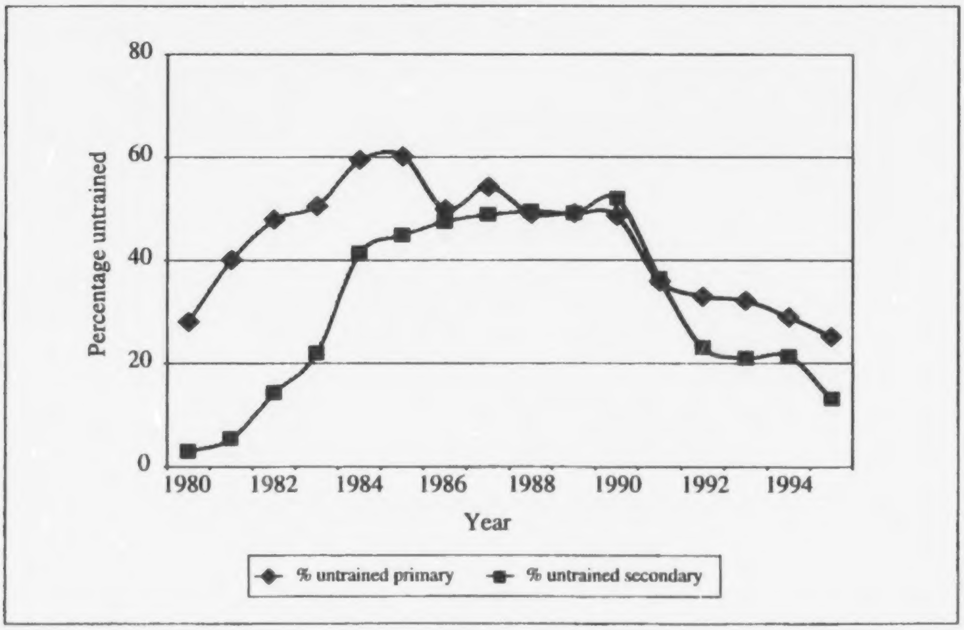
Secondary-school enrolments grew from a small base with a time lag compared to the growth in primary enrolments. Enrolments increased from 74,300 to 711,100 from 1980 to 1995, an increase of more than eight times. The number of secondary schools increased from 197 to 1,525 and the number of teachers in secondary schools rapidly expanded from 3,700 in 1980 to 27,300 in 1995.

High growth rates were achieved without directly related increases in the salary budget. Part of the reason was the deployment of large numbers of untrained teachers paid at lower rates than qualified teachers. The number of untrained teachers at secondary in 1980 was only 3 per cent of the total. This rose sharply to a peak at over 51 per cent in 1990 before it started to decline to only 13 per cent in 1995. In addition to employing 'O' level school graduates with five 'O' level passes and university students on vacation as temporary teachers, the Ministry employed teacher trainees from various teachers' colleges to manage a full class for a whole year or two before the trainees completed a certificate/diploma course. At primary level, the proportions of untrained teachers were doubled (from about 28 per cent to 60 per cent) between 1980 and 1985. This strategy had an overall cost-saving effect on the education budget during the period of most rapid expansion (see *Chart 4.2*). Double shifting using existing school buildings was also widely used to reduce capital requirements during high growth.

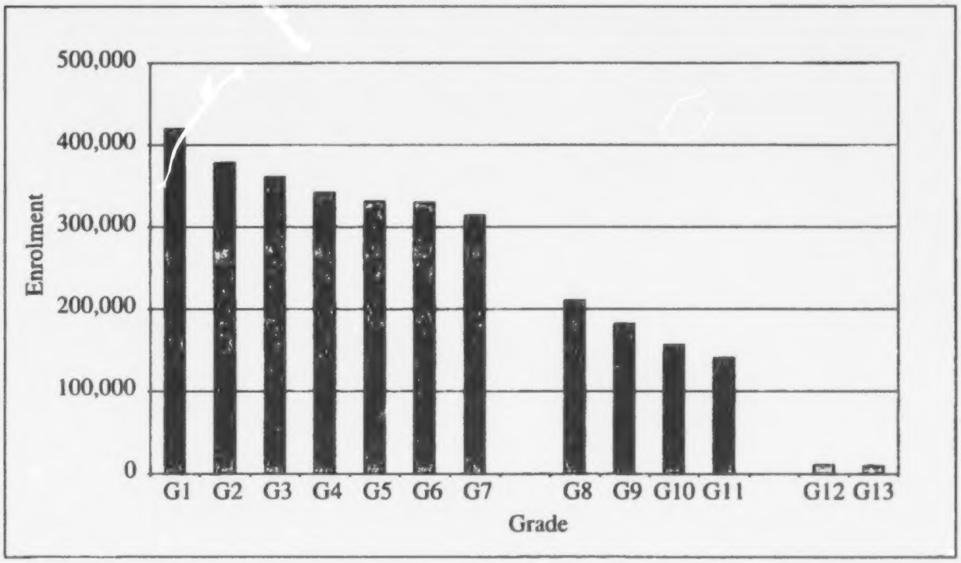
Chart 4.2 Percentage of untrained teachers by year



### (d) Current enrolments

The education system in Zimbabwe now enrols about 2.48 million primary students and 710,000 secondary students. Primary schooling lasts for seven years with a nominal entry age of six years old. Secondary extends from Grade 8 to 11 (Forms 1-4) and culminates in Ordinary level examinations which control access to Grades 12 and 13 (Form 6). These lead to university entrance. The enrolment pyramid in 1995 was as shown below (*Chart 4.3*). Girls' enrolment constitutes 98 per cent of boys' at primary level and 86 per cent at secondary. Over-age enrolment is common at primary level and both over- and under-age enrolment occurs in secondary schools.

Chart 4.3 Enrolment by Grade 1995



Gross enrolment rates at primary have been in excess of 100 per cent since the early 1980s and have now fallen back from peak values of over 130 per cent during expansion, to about 115 per cent. Secondary expansion was concentrated in the mid-1980s. Gross enrolment rates rose to over 40 per cent in 1985, since when they have improved very slowly to reach 44 per cent by 1995.

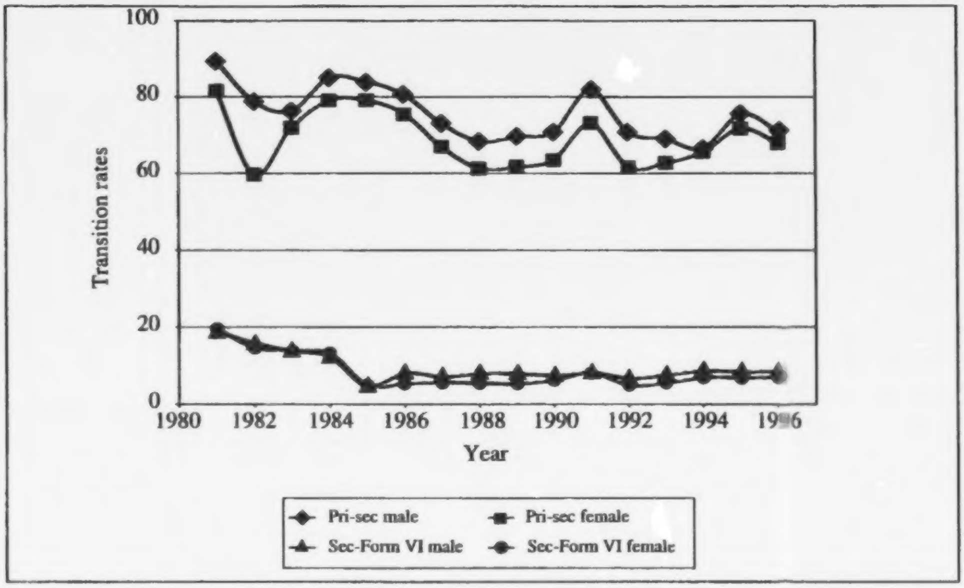
### (e) Automatic promotion and transition rates

A policy of automatic promotion from Grade 1 up to Form 4 was adopted in 1980 for two main reasons. Firstly, it was designed to remove the bottlenecks which existed prior to independence and thus equalize opportunities for progression to the 'O' level/terminal examination in Form 4. Secondly, it was intended to reduce overall costs and maximize opportunities to participate by increasing the flow of students through the school system. Without repetition more students could be enrolled at the same cost than with repetition. This was seen as both more equitable and more efficient than the pre-existing system.

Enrolment data can produce crude estimates of promotion and drop-out, assuming repetition is minimal. Drop-out is significant from Grades 1-4, varying between about 12 per cent in Grade 1 and 2-3 per cent for the other grades. Above Grade 4 drop-out is small. In Grade 6 there is some evidence that a small proportion of pupils are held back to improve their chances of being promoted to secondary schools when they enter Grade 7. At secondary level, promotion rates are between 90 per cent and 95 per cent up to Form 4. Drop-out averages about 7 per cent, concentrated in Forms 1 and 3. These rates suggest that automatic promotion is widely practised. Repetition rates are consistently low, with the result that the number of places occupied by repeaters is modest. As a consequence, enrolment rates can be higher for the same overall commitment of public funds than would otherwise be the case. Gross enrolment rates have benefited substantially from the increased flow of students through the school system that automatic promotion has encouraged.

Primary/secondary transition rates have fallen from around 85 per cent to about 70 per cent as primary enrolments have expanded to universal levels. Though the numbers enrolled in Form 1 have continued to increase, they have represented a smaller proportion of those completing Grade 7 primary. Transition rates from Form 4 secondary into Form 6 have also fallen from about 19 per cent to less than 9 per cent. Most of this fall took place in the early 1980s, since when the transition rate has remained fairly constant. Transition rates for girls are consistently below those for boys (*Chart 4.4*).

Chart 4.4 Transition rates primary/secondary and secondary/ Form VI, 1981-1996



In principle, no child should be denied access to a secondary school nearest his/her place of residence provided that he/she can afford the school fees charged at that school. If a child fails to pay, the School Development Committee (SDC)[2] or School Development Association (SDA) has the responsibility of recovering the money through persuasion or legal action. This can result in recovery of property to the value of the fees. As a result, selection of pupils into Form 1 is non-existent in the majority of school types, except in government and church boarding schools. These schools have excess demand for places and selection is usually based on results in Grade 7 examinations. In high-fee-paying Trust schools, the parent's ability to pay the high fees is enough qualification to be selected into this school type. Transition rates reflect the numbers of students willing and able to pay the fees charged.

At 'A' level, education is very competitive and entrance to Form 6 is highly selective. Selection into 'A' level education was previously done centrally, but for reasons of efficiency and effectiveness is now the responsability of school heads, 'A' level schools remaining nevertheless national schools enrolling students from all corners of the country. Of the 1991/94 cohort, which initially totalled 129,500, only 10,500 were selected into Form 5, a cohort selection ratio of 8 per cent. The ratio was similar for the 1992/95 cohort and has been held at around this level since the mid-1980s. Typically, more than 85 per cent of those pupils selected to proceed come from the high fee, church and government school types, especially boarding schools.

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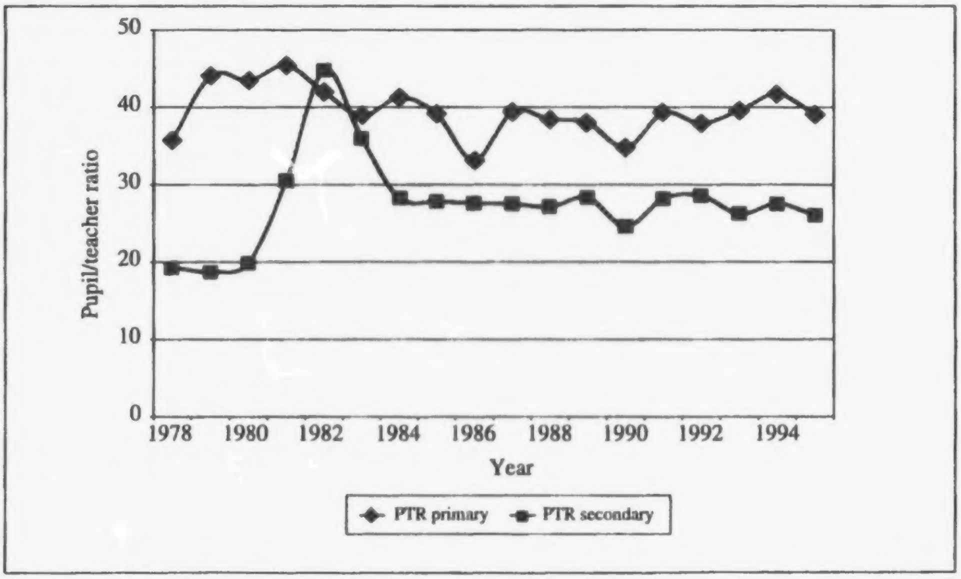
[2] School Development Committees are in non-government schools; School Development Associations in government schools.

Government policy is that there should be at least one 'A' level school in every district. So far only the two districts of Seke and Mudzi have no 'A' level schools. Plans have, however, reached an advanced stage to establish 'A' level schools in these two districts by 2002. Districts that already have 'A' level schools can, subject to the Ministry's approval, construct additional 'A' level schools without government assistance in accordance with capital development regulations. Worsening financial constraints have meant that government has been unable to develop its own government rural day secondary schools in these districts into 'A' level schools. Instead, it has chosen to encourage cost-sharing partnerships with local communities and private responsible authorities.

### *(f)* *Pupil/teacher ratios*

Pupil/teacher ratios (PTRs) favour secondary schools. Across the system, primary PTRs average about 40:1 and secondary about 30:1. Secondary PTRs increased during the period of rapid expansion in the early 1980s, but have now stabilised (*Chart 4.5*). This allowed a rapid increase in secondary enrolments to occur from 1981 in advance of the appointment of new teachers. Over time, the backlog created was overcome.

Chart 4.5 Pupil/teacher ratios at primary and secondary 1978-1995



Currently, official teacher/pupil ratios for the secondary sector are 1:33 for Forms 1 and 2; 1:30 for Forms 3 and 4; 1:20 for Forms 5 and 6. Staffing can be enhanced using a formula that allows school heads to bid for additional practical-subject teachers at a ratio of 1:320 pupils. This recognizes the need to teach split classes in practical subjects which can only be taught effectively and safely to smaller classes. In addition, there are allocations for approved slow learners at a ratio of 1:19; 1:7 for the hard of hearing and 1:10 for the visually disabled children.

In urban centres where demand for secondary education is usually higher than in rural areas, the teacher/pupil ratio is usually higher than the national average. The non-government Trust schools employ additional teachers above the official allocation to achieve teacher/pupil ratios which are far below official figures. In a small sample of 60 schools on which data were available, PTRs varied as shown below by school type (*Table 4.1*).

Table 4.1 Pupil/teacher ratio by school type

| | Pupil/teacher ratio |
|---|---|
| Church | 20 |
| District Council | 24 |
| Farm | 32 |
| Government | 23 |
| Mine | 39 |
| Trust | 15 |

Nominal teacher/pupil ratios are used by the Ministry to bid for teaching posts from the Treasury. On the basis of these, funds are released to support teachers' posts and teachers are allocated to schools. In principle, these allocations should result in an equitable distribution of teachers according to the numbers of pupils. In practice, it is clear there are wide deviations in PTRs from the norms established.

### *(g) Administration*

After independence the government recognized that responding to the huge demand for increased access would have to be tempered by budgetary constraints. Part of its strategy was to devolve the responsibility for providing capital infrastructure for schools to local authorities and communities. Government retained the responsibility for authorization, registration and payment of teachers' salaries and provided pupil per-capita grants to all registered schools. It continued to fully fund all government schools inherited from the pre-independence era and agreed to part-fund the non-salary recurrent costs of non-government schools. Schools now fall under several different types of administrative arrangement. The main types are shown below along with the source of their funding and perceived quality[3] (*Table 4.2*).

Table 4.2 Types of school, responsible authority, funding and perceived quality

| Type | Responsible authority | Funded by | Perceived quality of schooling |
|---|---|---|---|
| Government | Government | Parents and government | Good |
| Rural District Council or Urban District Council | Rural District Council or Urban District Council | RDC/UDC, parents, government contributions, donors and NGOs | Poor to average |
| Mission/church | Church | Church, parents, government contributions, donors and NGOs | Good to very good |
| Mine/farm | Mine/farm | Mine/farm, parents, government contributions, donors and NGOs | Mine – average to good<br>Farm – poor |
| Trust schools | Trust governing bodies | School fees and levies, private contributions, government contributions, fund raising | Very good |

The great majority of schools are in communal areas, formerly referred to as African Reserves or Tribal Trust Lands. Resettlement areas are locations acquired by government to resettle landless peoples from communal areas. Government schools are overwhelmingly urban at primary level. Rural District Councils are by far the most common responsible authority at both levels. Mission and church schools account for the next largest category.

The administrative system for schools that has emerged is complex in the sense that several different authorities take responsibilities for schools. Salaries of teaching staff are provided to all schools by central government. In non-government primary and secondary schools, all other non-teaching staff are funded by the responsible authority. All maintenance, equipment, learning materials and other recurrent costs are met by government in government schools. In non-government schools these costs have to be funded by responsible authorities which receive small pupil per-capita grants from government. These amounted to about 4 per cent of the cost per pupil in government schools in the early 1990s. Construction costs at primary are shared with the community, often through provision of subsidized building materials. The expectation is that the community will provide labour and other inputs. The same is true for non-government secondary schools. Government secondary schools generally have buildings provided. Fees are charged in all schools and can vary widely.

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[3] As judged by the authors.

The distribution of schools by authority and location is shown in *Table 4.3*. Only 6 per cent of primary schools and 13 per cent of secondary schools are government administered. This indicates the extent to which the responsibility for funding many elements of school budgets falls on local authorities and the community.

Table 4.3 Primary schools by responsible authority and location 1996

| | Urban | Communal | Resettlement | Communal farms | Mines | Total |
|---|---|---|---|---|---|---|
| **Primary** | | | | | | |
| Government | 251 | 3 | 0 | 10 | 2 | 266 |
| Rural District Council | 33 | 3,225 | 111 | 237 | 5 | 3,611 |
| Mission or church | 29 | 143 | 9 | 33 | 0 | 214 |
| Urban Council | 84 | 1 | 0 | 5 | 0 | 90 |
| Mine | 12 | 3 | 0 | 7 | 6 | 28 |
| Trust/Board of Governors | 34 | 26 | 2 | 39 | 8 | 109 |
| Other | 70 | 46 | 0 | 165 | 64 | 345 |
| Total | 513 | 3,447 | 122 | 496 | 85 | 4,663 |
| **Secondary** | | | | | | |
| Government | 128 | 59 | 0 | 6 | 1 | 194 |
| Rural District Council | 15 | 969 | 36 | 50 | 1 | 1,071 |
| Mission or church | 20 | 115 | 0 | 39 | 0 | 174 |
| Urban Council | 6 | 0 | 0 | 0 | 0 | 6 |
| Mine | 3 | 0 | 0 | 0 | 8 | 11 |
| Trust/Board of Governors | 15 | 8 | 0 | 7 | 0 | 30 |
| Other | 21 | 8 | 0 | 12 | 2 | 43 |
| Total | 208 | 1,159 | 36 | 114 | 12 | 1,529 |

Though salaries for teachers are met centrally up to agreed staffing levels, many other costs in the majority of schools fall on the responsible authorities, who can raise money in a variety of ways, including fees and levies and contributions in kind. This has mobilized additional resources to support expansion, which would not otherwise have been available.

The data indicate that whilst there has been a very substantial increase in the number of schools and enrolments there are significant variations in the spatial distribution of schools, in participation rates by gender, and by school across geographical areas, administrative and economic regions, and socio-economic and sociocultural groups. These factors have resulted in a wide variation in the quality of education offered in Zimbabwean schools.

One tentative conclusion is that the inequalities in access and quality inherited at independence have not been overcome. The existing arrangements have not adequately compensated for previous marginalization. Thus differences in the quality of schools and their level of per-capita costs continue to reflect historic patterns and correlate with the kind of responsible authority charged with running the different types of schools (Colclough et al., 1990; Lewin and Bajah, 1991; Nyagura, 1992). Most expensive and most prestigious are the high-fee non-government (trust) schools and former Group A (government)[4] schools, which have generous provision of classrooms and furniture, textbooks, library books, pens and pencils, chalk and paper, maps and charts, and dictionaries. These schools have effective administration and many extra-curricula facilities and can attract and retain experienced and trained teachers. At the other extreme are rural district council schools and farm schools. These are seriously affected by shortages of classrooms, classroom furniture and qualified teachers. In these schools there is an insufficient supply of textbooks, and other learning materials and inadequate or non-existent administration and extra-curricular facilities. Costs in these schools are much lower.

A small sample of 60 schools[5] produced the following pattern of average performance for 'O' level pass rates, illustrating how some of the differences in quality may be reflected in pass rates (*Table 4.4*).[6]

Table 4.4 Pass rates at different levels for different school types

| | Lower secondary % pass | Upper secondary % pass | Form VI % pass |
|---|---|---|---|
| Church | 84 | 75 | 84 |
| District Council | 40 | 33 | 12 |
| Farm | 47 | 43 | 0 |
| Government | 43 | 38 | 64 |
| Mine | 46 | 38 | 0 |
| Trust | 79 | 73 | 65 |

[4] Group A schools were urban low-density schools previously reserved for whites. Group B were urban high-density schools intended for Africans.

[5] Selected by the authors from a national sample.

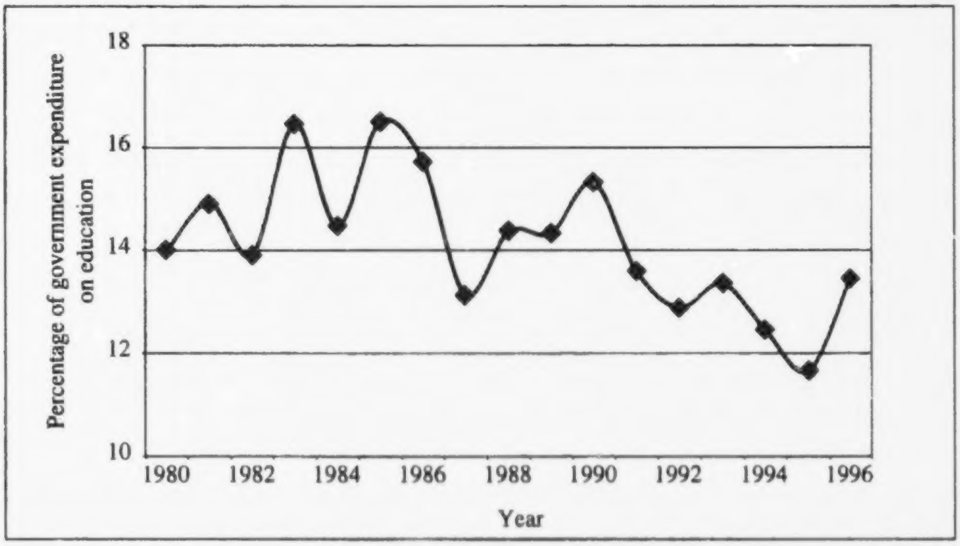
[6] The sample may have included a disproportionate number of high-scoring schools since the average pass rate nationally at this level is around 25 per cent.

## 2. Aspects of educational financing

### (a) *Overall budgetary allocations*

Zimbabwe has consistently allocated large proportions of GNP to educational investment. Through the 1980s, 8-9 per cent of GNP was directed towards public expenditure on education. These levels are amongst the highest found throughout sub-Saharan Africa over this period. This was accompanied by similarly high commitments as a proportion of the public expenditure budget. Up to 17 per cent of public expenditure was spent on education during the mid-1980s, falling back to the current levels of about 14 per cent (*Chart 4.6*).

Chart 4.6 Percentage of government expenditure on education by year



There was therefore a sustained and high level of allocation of public funds to support enrolment growth, without which gains in enrolment ratios are unlikely to have occurred.

### (b) *School financing*

The main source of funding for government primary schools is through the ministry vote. Parents' contribute through self-help school projects, such as provision of additional classrooms, fencing or dura[7] walling, purchase of school buses, etc. The more funds the parent-teacher association of a government school (now legally named as the School Development Association (SDA)) can mobilize from its school community, the more support it should be able to give to school development. The level of fees (1997) at government primary schools are Z$315 for former Group A schools and Z$105 for former Group B schools, per child per annum. Once this money is paid to the Treasury, it may not be ploughed back to the education sector. There is no necessary connection between the amounts contributed and the amounts of support from government each year. The main aim of the Education Amendment Act of 1991 was to create corporate bodies to enable schools to retain all fees and levies collected for the specific purpose of developing individual schools. Since the promulgation of the Act, school development corporate bodies have been created, training has been provided in planning and financial management, and school bank accounts have been opened. At the time of writing, funds for building grants-in-aid and from school fees had not materialized in school budgets.

Funding for non-government primary schools varies according to the type of responsible authority. For all Trust schools, the main sources of funding are school fees and levies, share sales, donations from the private sector and a wide variety of other forms of fund raising. The fee structure in these schools in 1997 ranges from Z$21,000 to Z$36,000 per annum for each child. They also administer a variety of levies such as desk fees (about Z$5,000), voluntary levy (about Z$12,000 to Z$20,000 or more) per child and many other varieties of lesser levies. Mission (Church) schools are funded according to the same principles, except that the average fees and levies charged are much less than those charged by Trust schools. These average Z$9,000 and Z$4,500 per child, per annum, respectively. The rural district council schools are the most poorly funded of the non-government schools. The main source of funding is through parents' labour (forming bricks, supplying river sand and water); a building levy of about Z$20 per family and some donations from international donors and non-governmental organizations. The school fees charged by these schools are collected by the responsible authorities (normally the RDC), which may not allocate all the money to support schools in general, or specific schools in particular. Other types of non-government primary schools, such as farm, mine and parastatal are funded almost in the same way as district rural council schools, where parental input is the most significant contribution, unless there is a significant corporate contribution as in some mine schools. The Education Amendment Act of 1991 created School Development Committees (SDCs) at non-government schools in parallel with the creation of SDAs in government schools in order to try and ensure that the money collected was allocated to school development. This has also yet to become a reality.

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[7] Brick or concrete security fencing around schools.

Fees were re-introduced at primary level in 1991. Primary schools in rural areas were exempted from paying the Z$4 school fee per child, per term, where there were persistent drought and very low cash incomes. The potential revenue base for many rural schools thus remains very small. All non-government schools do get financial assistance from government in the form of teachers' salaries and modest per-capita grants, which are skewed in favour of rural and disadvantaged schools. Thus, Z$8[8] per child, per annum, is provided for low-density urban schools; $20 for high-density urban schools and $24 for rural schools. These grants are too low to have much impact on equity, since they represent only a small proportion of total costs per pupil. Surprisingly, children in the non-government trust schools, which generally have substantial incomes and budgets, also benefit from government per-capita subsidy at a lower rate of Z$8 per child per annum. Parents are expected to meet the costs of buying school uniforms, sports equipment, pens, rulers, exercise books and many other incidentals required by the school. This is another area where the pattern of financing schools has not only maintained inequalities but widened them, since the ability to support such costs varies widely from community to community.

At the secondary level, government remains the main responsible authority for the construction of schools in all urban centres. It is also committed to the construction of at least one government rural day secondary school in each of the 59 administrative districts and it gives subsidies to local authorities for the construction of additional rural secondary schools. Public capital expenditure in government schools amounts to 94 per cent of the total, leaving a 6 per cent contribution by parents through self-help projects. In non-government schools, capital subsidies amount to approximately 27 per cent. The rest is provided by responsible authorities and communities and by donors, who contributed about 23 per cent of the total (1997 estimate).

Government pays salary expenditures for all teachers at both government and non-government schools. The non-salary expenditures at government schools are provided for in full by government, while non-government schools receive subsidies in the form of per-capita grants (currently at a rate of $7 per child, per annum, for low-density urban schools; $10 for high-density urban schools; and $20 for rural schools) to assist the responsible authorities with the school's recurrent costs. The policy on tuition grants is periodically reviewed upwards in line with the rising cost of living and is skewed in favour of the rural disadvantaged pupils, as the above figures show.

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[8] The value of the Z$ has depreciated and now (1999) stands at about US$1 =Z$33. At the time of this study, a $US was between Z$15 and Z$20.

The main non-salary expenditure items of an average day government school are textbooks, library and stationery; school running costs (miscellaneous); practical subjects; science; water, light and sanitary expenses; and post and telecommunication services. For a boarding government school, in addition to the above list, there are substantial expenditures on provisions; fuel; hostel running costs (miscellaneous) and laundry, which are met by government. All these items are based on per-capita allocations, except water, lighting and sanitary charges, post and telecommunication services and fuel, which are based on actual expenditure and previous performance. Laundry is subject to contracts. These items are controlled by the Finance Division of the ministry.

The other main items of non-salary expenditures are subsistence and transport; school services; school furniture and equipment; building and equipment grants and tuition grants. The average expenditure per pupil at a day government secondary school in terms of the voted provisions translates to Z$200 per student per annum, and Z$4,000 per student per annum for a boarding government secondary school.

It is difficult to assess the non-salary expenditures per student for non-government secondary schools because of the magnitude of the differences in facilities and services offered by different school types. The high-fee trust schools should have a higher fees and per-student expenditure than other school types because of the wide range of facilities and services offered at these schools.

Teachers' salaries are determined by their qualifications, grades and experience. The Public Service Commission determines the salaries and points at which teachers are employed. Temporary teachers are paid at lower rates than qualified teachers. It is estimated that there are about 3,000 untrained temporary teachers at secondary level. As a result, the government saves about Z$40,000,000 per annum in salaries over what it would have to pay if all were qualified. The salary entry point for a temporary teacher is Z$26,500 p.a. College-trained teachers and university graduates start at Z$38,230 and Z$44,090 respectively.[9] Teachers' salaries appear to be over 8 times per-capita income, reflecting the fact that they are relatively well paid compared to many other sub-Saharan African countries.

Average teacher salaries per student have increased steadily in nominal terms since 1992, from Z$730 during the 1991/92 financial year to Z$1,590 in 1994/95. These figures conceal the inequalities that exist in the system, because the total salaries bill includes salary grants paid to non-government trust schools for those teachers who have opted out of the civil service. These teachers are about 1 per cent of the total teaching force. Salaries in non-government (trust) schools are on average twice as much as the salaries of the ordinary teacher, who is a civil servant. Generally, the average teaching salaries per student in the secondary sector are approximately twice as high as those in the primary sector. The non-teaching salaries and non-salary costs per student for government schools have increased from Z$320 in the 1991/1992 financial year to Z$750 in 1994/1995 in the secondary-school sector. The level of non-salary expenditure is about five times more in secondary than in primary schools.

It is difficult to compare non-teaching salaries and non-salary costs per student between school types because of the non-availability of statistical data and information by school type. Typically, non-government (trust) schools offer a wide variety of high-cost sporting activities and social clubs such as horse riding, mountaineering, flying, hockey, tennis, basketball, cricket, rugby, athletics. At the other end of the spectrum, rural district council schools, at best, offer only soccer, netball and athletics. Subsidy of non-government trust schools maintains historic inequalities between rich and poor schools.

### *(c) Cost per student*

The overall patterns of unit costs that have accompanied recent growth in enrolments are shown below (*Table 4.5*). Public unit costs at primary have grown from about Z$450 in 1991/2 to Z$990 in 1995/6 in current dollars. At secondary the increase has been from Z$800 to Z$1,670. The overall ratio of secondary to primary costs per student has varied between about 1.7:1 and 2:1 over this period. It is worth noting that during the 1980s unit costs in real terms were fairly stable at primary and secondary, contributing to the ability of government to finance expansion (Colclough et al., 1990).

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[9] Some 15,000 primary teachers are untrained (1995) representing further gains of about Z$200 million over what would otherwise have to be found for salaries.

Table 4.5 Estimated recurrent budget allocation, enrolment and expenditure per pupil at secondary and primary and secondary 1991-1996

| **Primary** | 1991/1992 | 1992/1993 | 1993/1994 | 1994/1995 | 1995/1996 |
|---|---|---|---|---|---|
| Allocation Z$ million | 1,046 | 1,288 | 1,499 | 2,056 | 2,478 |
| Enrolment million | 2.30 | 2.37 | 2.50 | 2.42 | 2.49 |
| Expenditure per pupil (Z$) | 454 | 543 | 600 | 848 | 995 |
| **Secondary** | | | | | |
| Allocation Z$ million | 547 | 661 | 794 | 1,028 | 1 271 |
| Enrolment million | 68.4 | 6.48 | 6.50 | 6.84 | 7.61 |
| Expenditure per pupil (Z$) | 800 | 1,020 | 1,221 | 1,502 | 1,672 |

*Table 4.5* shows the variation in unit costs between primary and secondary schools. The overall budget allocations for the financial years 1991/1992 to 1995/1996 show that government spent between 70 per cent and 100 per cent more on a secondary-school pupil than on a primary-school pupil.

These overall budget allocations and unit costs conceal inequalities between school types that exist in the system. Total unit costs for different types of school at different levels are shown below (*Table 4.6*). A recent survey carried out by the Ministry of Education in 1996, based on estimated recurrent expenditures (school levies, school fees, teachers' salaries, uniform costs, and any other financial inputs including per-capita grants) showed large variations in total unit costs per pupil among the various types of schools. These variations range from Z$1,170 to Z$15,900 (a difference of Z$14,720) for primary schools and Z$2,320 to Z$33,030 (a difference of Z$30,710) for secondary schools.

Table 4.6 Estimated recurrent unit cost per year by type of school: 1996 (Zimbabwe dollars)

| Type of school | Unit cost Z$ (primary) | Unit cost Z$ (secondary) |
|---|---|---|
| High fee (trust, etc.) | 15,896 | 33,026 |
| Mission | 3,271 | 6,344 |
| Rural District Council | 1,174 | 2,318 |
| Urban local authorities | 1,301 | 10,436 |
| Government 'A' | 3,876 | 10,115 |
| Government 'B' | 2,113 | 3,535 |
| Government rural | 1,908 | 2,909 |

*Source :* Ministry of Education, 1996.

It remains a concern of government that the high-fee-paying trust schools are in a class of their own in terms of resource endowment, while rural district council schools are at the bottom. High-fee trust schools remain predominantly white schools, whose children have been removed from government former Group A schools. The schools include a very small number of black children whose parents are mostly company directors and/or hold executive positions in the private sector. The rural district council areas and those where schools were only started after independence are clearly the most disadvantaged, even though the per-capita subsides from government are skewed in their favour. If government is to narrow the inequality between school types, there is a need to increase unit costs in rural district council schools. This might involve injecting more funds for teaching and learning materials and improving the physical and social environment for the teachers. This would go some way towards redressing the inequities suggested by the available data.

### *(d) Fee differentials*

For most schools it is the non-budget contribution to school finance (obtained from fees and levies) which is the major factor that causes variations in unit costs per pupil by school type. According to the Education Act of 1987, and as amended in 1991, government determines school fees that are payable at government schools, while responsible authorities of non-government schools seek the approval of the Permanent Secretary for Education to charge the levels of school fees and levies they consider appropriate. As a general rule, School Development Associations (government schools) and School Development Committees (non-government schools) determine the range and level of levies they charge themselves at their annual general meetings or at extraordinary meetings. Once an agreement is reached they apply through the school head to the Permanent Secretary for approval. The situation is not quite the same in high-fee trust schools, where the board of trustees, and not the school development committee, determines the level of fees and levies before seeking approval. Applications to raise fees and levies (which must not exceed 10 per cent of current charges in any one year) by high-fee trust schools have not always been successful, a situation that has constantly caused friction between these schools and government. The actual fees and levies collected may not be the same as those officially submitted to the ministry for some schools. Since government auditors cannot audit their financial books, the true figures may be higher than suggested in the available data.

From data obtained from a sample of school files, parents pay on average about Z$19,500 and Z$24,900 per child, per annum, in school fees for a high-fee trust primary school day scholar and boarder respectively. At the secondary-school level, parents pay, on average, Z$27,000 and Z$34,500 per child, per annum, in school fees for a day scholar and boarder respectively. In addition to school fees, parents are required to pay an assortment of other levies such as a desk fee (about Z$2,000 – Z$4,000) for the whole cycle, either primary or secondary; and voluntary levies, which can be anything up to Z$20,000. The building levies range from about Z$6,000 – Z$12,000 per annum. Parents may make many other contributions in cash or in kind such as, provision of sports equipment and expertise, vehicles for transportation of children and teaching and learning materials, graders for clearing sports fields, contracted labour, etc. The justifications given for these high fees and levies are that the schools need to employ more teachers to reduce teacher/pupil ratios. They also need to pay their teachers above the government-scale salaries and offer other incentives, such as free accommodation and education for teachers' children, in order to attract and retain the best teachers, and offer an education of the highest quality possible.

By comparison, parents who send their children to government primary schools pay Z$320 (for primary schools in low-density urban centres) and Z$110 (for primary schools in high-density urban centres) per child, per annum, while government boarding primary schools charge Z$2,000 per child per annum. Extra-territorial pupils pay Z$1,400 and Z$3,960 per pupil for day scholars and boarders respectively. Government primary-school levies on average range from Z$600 – Z$1,000 per child, per annum. Occasionally, parents collect additional levies for fixed periods if these are needed to carry out specific projects, such as the purchase of a bus or the construction of dura wall around the school.

Parents whose children attend government secondary schools pay Z$630 (for low-density schools), $320 (for high-density schools) and Z$180 (for rural schools). Boarding fees in government secondary schools are Z$2,400 per child, per annum. Extra-territorial pupils pay Z$1,950 and Z$4,230 to attend day and boarding government secondary schools respectively. There is a wide range of variations in the size of levies charged by government secondary schools ($600 – $4,500) per child, per annum, depending on the size and range of facilities offered by each individual school.

On average, church secondary schools charge about Z$9,000 school fees per child, per annum, for day scholars and Z$13,500 per child, per annum, for boarders. Levies in these schools are charged in line with the guidelines given by government and are quite moderate when compared to the high-fee trust schools. The same is true with the urban councils' schools, whose fees and levies are just a little above government fees and levies.

The non-budget community contributions in rural district council schools are largely in kind. Communities in these areas are so poor that government continues to exempt primary students from tuition fees, while secondary schools charge modest fees, which on average are about Z$590 per child, per annum. Building levies average approximately Z$40 per child, per annum. The major contribution made by the community is in the provision of bricks, river sand and water for the construction of schools, labour for digging trenches and foundations for the construction of Blair toilets and construction of classroom blocks, office blocks, halls, etc. It is this meagre resource base that has made this type of school poor and unattractive in both resource provision and academic performance. It is important to note that academic performance by Zimbabwean schools is highly correlated to levels of resource allocation and availability, with the well-resourced schools performing far better than the poorly resourced schools (Nyagura, 1992; Colclough et al., 1990).

### *(e) Summary observations from the analysis*

Zimbabwe's achievements in expanding educational participation are impressive. The analysis suggests that several factors have contributed to the gains in participation which have occurred. These are summarized below.

First, it is clear that there has been a high level of commitment of public resources to education, which has been sustained over a long period. Few governments in sub-Saharan Africa have allocated such large proportions of GNP to education or maintained higher levels of the proportion of public expenditure on education. Tertiary allocations were held to less than 10 per cent throughout the period of rapid expansion and now account for about 17 per cent. This indicates prioritization of investment in participation in school. Over the period of most rapid growth, unit cost at primary and secondary remained stable in unit-cost terms and this contributed to the financial sustainability of enrolment gains.

Second, Zimbabwe has deliberately adopted a system of school administration that shares the costs of increased participation with local-level authorities, communities and community-based organizations. This has eased the burden of the costs of enrolment expansion on the public budget. Without this, it is unlikely enrolment growth would have been so rapid. It has been noted that this may have resulted in the perpetuation of existing inequalities, since resources available at the local level vary widely between communities. This problem still needs addressing as distributional issues become prominent in the wake of increased participation.

Third, the introduction of automatic promotion has evidently made it possible to reach higher gross enrolment rates at primary and secondary than would otherwise have been possible. Repetition rates throughout primary are low and only reach modest levels in secondary schools.

Fourth, during the periods of rapid expansion, large numbers of temporary teachers were employed at lower costs than for qualified teachers. Pupil/teacher ratios were also allowed to increase. Over time the proportion of temporary unqualified teachers has been reduced and the pupil/teacher ratios have returned to levels comparable with historic norms. Double shifting was also used to increase capacity in advance of new school buildings becoming available. If these strategies had not been adopted, the rate at which enrolment rates increased would have been slower.

Fifth, the pattern of financing secondary schools, with substantial contributions from parents and communities, has meant that public expenditure per student has remained a small multiple of primary costs per student. If this had not been true, then secondary participation rates would have been much lower for similar overall budgetary allocations.

### *(f) A simulation*

It is possible to model how the costs of the Zimbabawe education system might change under different scenarios over the next 15 years. Using the model described in Chapter III, a simulation was constructed with the following baseline data taken from Government of Zimbabwe and UNESCO statistics (*Table 4.7*).

Table 4.7 Simulation parameters

| Parameter | Simulation 1 |
|---|---|
| Population growth | 2.9% |
| Primary GER | 117% |
| Secondary GER | 44% |
| Unit-cost ratio of secondary to primary | 1.7 |
| Primary entry rate | 110% |
| Repetition | 1% rising to 2% in last grade |
| Promotion | 95% and above in all grades but Grade 1 (88%) |
| Drop-out | 11% in Grade 1 falling to 1% in Grade 7 |
| Pupil/teacher ratio | 39:1 |
| Teacher attrition | 10% |
| Secondary entry rate | 65% |
| Repetition | 1-2% except in Grade 11 (Form IV) where it is 8% |
| Promotion | 90-95% |
| Drop-out | Averaging 7% |
| Pupil/teacher ratio | 27 |
| Teacher attrition | 5% |

The simulation has been used to project how costs will increase if the gross enrolment rate at secondary were to be allowed to grow from its current level to 70 per cent, assuming that primary gross enrolment rates remain at their current level. Several assumptions have been made in Simulation 1 which should improve the efficiency of the system. First, it is assumed that drop-out in primary will be reduced to 2 per cent in all grades over the next five years. This involves small adjustments, except in Grade 1 where the rate is currently 11 per cent. Second, drop-out at secondary falls from 7 per cent to 3 per cent over the same period. Both these developments would increase costs by retaining more students in the system.

If the transition rate into secondary is increased from 65 per cent to 90 per cent over 10 years, this leads to a gross enrolment rate at secondary of 70 per cent in this simulation. The costs of the system increase by a factor of 1.8 over 15 years. This can be compared with the baseline model without these changes, where costs increase by 1.5 times on the assumption that GNP per capita remains constant in real terms. See *Chart 4.7:* Gross enrolment rates at primary and secondary; *Chart 4.8:* Recurrent costs for primary and secondary as proportion of total base-year costs, 1996-2010.

Chart 4.7 Simulation 1: Gross enrolment rates at primary and secondary

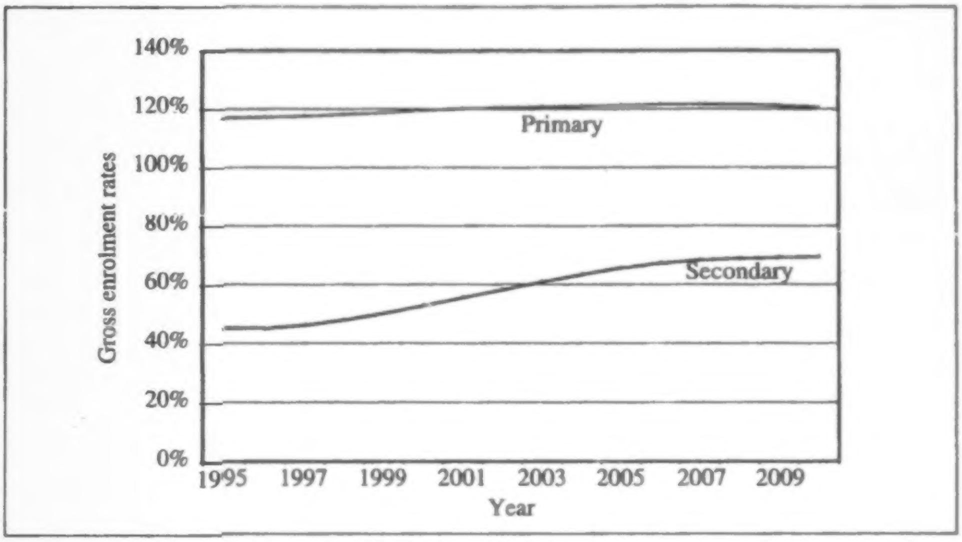
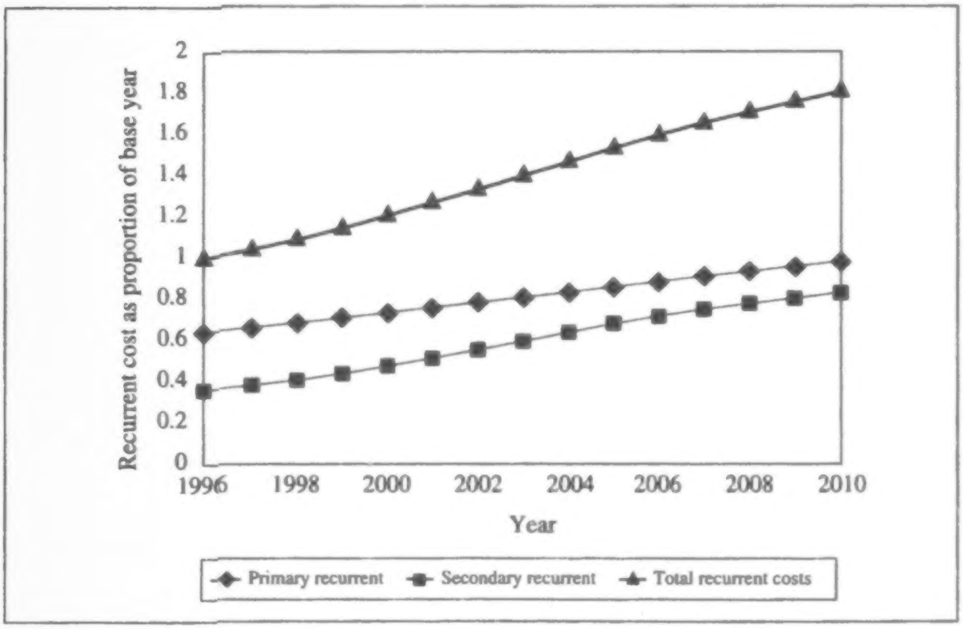
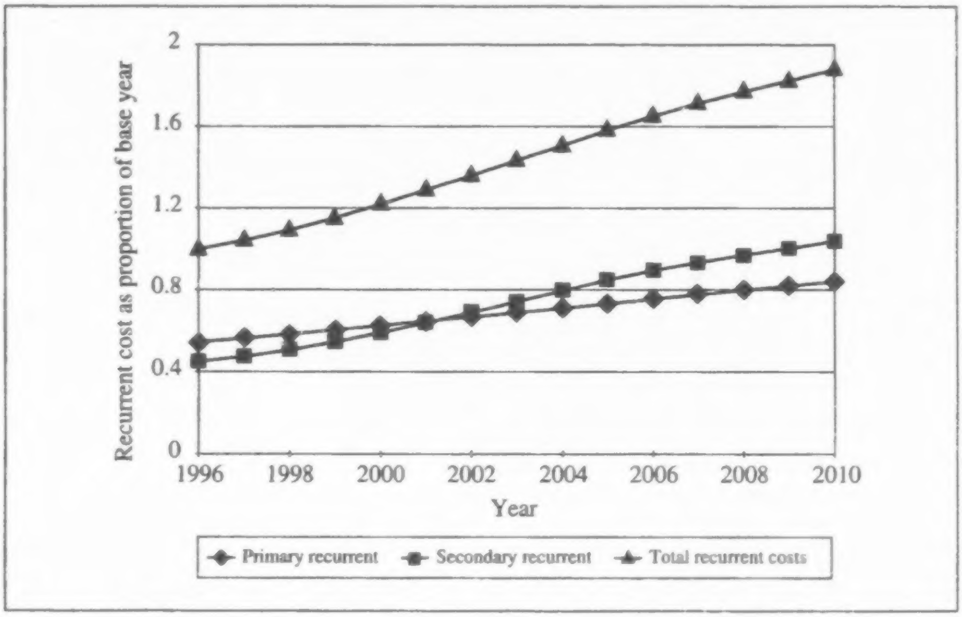


Chart 4.8 Simulation 1: Recurrent costs for primary and secondary as proportion of total base-year costs, 1996-2010



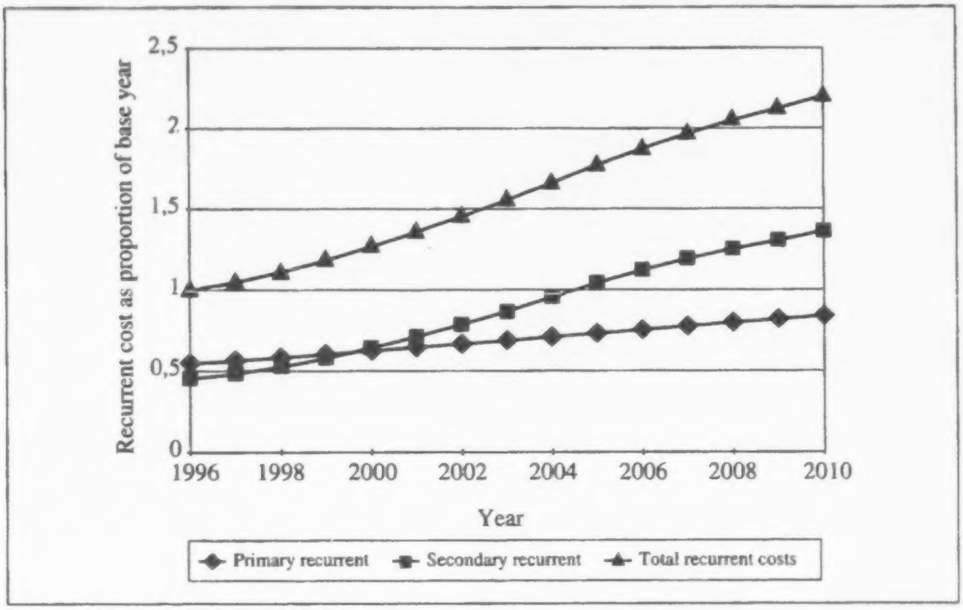
In Simulation 2 (see *Chart 4.9*) further assumptions have been made. Here it is assumed that public secondary unit costs have been allowed to grow to 2.5:1 those at primary from their current ratio of 1.7:1. With appropriate distributional measures this should allow improvements in quality and access to those currently attending lower-cost secondary schools in historically deprived locations. The result is costs which increase by 1.9 times over the base year. In this case, expenditure on secondary schools starts to exceed the total cost of the primary system after five years. Gross enrolment rates at primary and secondary are unaffected.

Chart 4.9 Simulation 2: Recurrent costs for primary and secondary as proportion of total base-year costs, 1996-2010



In Simulation 3 (*Chart 4.10*) a higher target of gross enrolment rate of 90 per cent at secondary has been set with the cost ratios of Simulation 2. In this case, total costs rise to 2.2 times the base year and secondary expenditure becomes much greater than that on primary schools.

Chart 4.10 Simulation 3: Recurrent costs for primary and secondary as proportion of total base-year costs, 1996-2010



Finally, it may be that the growth in the school-age cohort is considerably less than the historic population growth rates of 2.9 per cent. If the school-age cohort were to grow more slowly at 1.5 per cent, the result is that total costs and GERs would fall below levels projected in Simulation 3. Total cost would become about 1.9 times baseline costs, primary GERs would fall to around 100 per cent and secondary GERs to a little over 80 per cent. This is shown in Simulation 4 (*Chart 4.11*).

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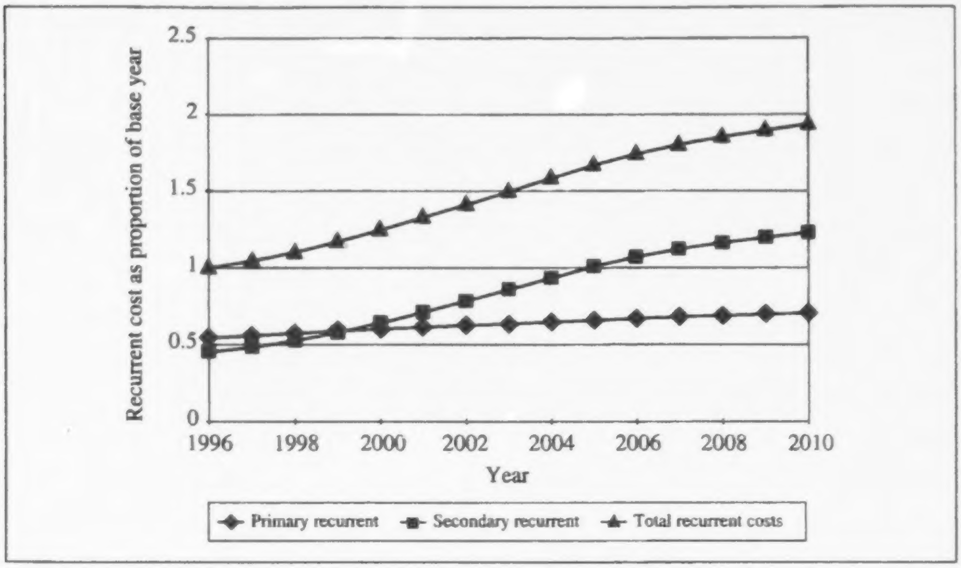
Chart 4.11 Simulation 4: Recurrent costs for primary and secondary as proportion of total base-year costs, 1996-2010



It should be noted that the simulations do not take account of the short-term costs of training more teachers and eliminating untrained teachers; they simply account for the additional salary bill which results from an increased number. Nor do they account for additional capital costs. The latter is important and could be simulated with cost data on buildings. However, it is unlikely that this will be the defining constraint on growth in participation. External assistance is probably available to support capital costs and long-term borrowing would create manageable repayment schedules if a priority were attached to expanding the stock of school buildings, using structures with appropriate costs.

If higher rates of gross enrolment at secondary are to be achieved, and costs per student are to rise in real terms, allowing improved quality and better distribution, the simulations suggest that there is a new financial challenge to be met. The simulation shows costs as a proportion of costs in the baseline year. If GNP grows at the same rate as population (2.9 per cent) over the next 15 years, then the resources available will grow by 1.5 times.

Zimbabwe's education budget is likely to remain constrained to levels not very different from current levels. Few countries spend more as a percentage of GNP; most spend less. Real per-capita growth in GNP over the period from 1980 has been negative (-0.6 per cent p.a.). GNP shrank over the period 1990-1996 by -1.1 per cent per annum. Unless very optimistic assumptions are made about economic growth, an increase in the costs of the education system of as much as 1.5 times over the next 15 years in real terms would seem to be difficult to attain. This could only be achieved with 3 per cent growth or an increase in the proportion of GNP allocated to education by 50 per cent from its current level of about 8 per cent. Both of these seem unlikely. The simulations suggest that if drop-out is to fall, and secondary participation to increase, more than a 1.5 times' increase in expenditure would be needed. The impact of HIV/AIDS on these projections is uncertain but is likely to be significant. Teacher attrition is rising and population growth is falling. Economic growth is likely to be adversely affected.

This then is the challenge that confronts policy-makers. We now turn to some concluding remarks.

## 3. Concluding remarks

This discussion illustrates how some policy initiatives have influenced the development of education in general, and secondary education in particular, in Zimbabwe since 1980. Important strategies included the transformation of the colonial education systems into one system; unimpeded progress from Grade 1 up to Form 4; tuition-free primary education from 1980 to 1990; the use of temporary untrained teachers to meet short-term needs; double-sessioning of school facilities in areas where enrolments grew fastest; and cost-sharing measures in the financing of education. Together these have enabled Zimbabwe to achieve universal access to primary schooling and high rates of secondary participation.

While it is clear that the policies adopted have helped to improve access, issues of quality, efficiency, relevance and equity have remained problematic. It has been argued that the school governance and financing system remains a source of fundamental inequalities in the provision of quality education to the bulk of the population, especially at secondary level. Local authorities and communities have accepted the challenge of providing primary and secondary education in partnership with government in an unusually effective way. However, a consequence has been that great variations in the quality of schools remain associated with the resources that different communities have available. In some cases, inequalities may have increased. The quality of education provided by schools depends as much or more than it did previously on the socio-economic status of the communities which support the schools. This is a predictable consequence of more emphasis on local financing. Though there are some mechanisms which seek to provide enhanced subsidies and safety nets for those communities and responsible authorities with fewest resources, these seem insufficient to compensate for enduring variations in the quality of provision.

Since the early 1980s, the majority of primary-school children in rural areas have lived within five kilometres walking distance of a school. Their secondary-school counterparts live within 10 kilometres distance, though in remote and disadvantaged rural areas, pupils may walk longer distances to school. The majority of secondary schools, which opened between 1980 to 1990, started by sharing facilities with host primary schools, while their separate facilities were being provided for at separate sites. Some of these secondary schools are still being hosted at primary schools more than 10 years after they were opened. In addition, the overwhelming majority of these rural district council secondary schools have inadequate tutorial and sanitary facilities, teachers' houses and learning/teaching resources. However, the story is different when it comes to non-government trust, church and government schools. In most of these, facilities are readily available.

The cost-recovery measures at the secondary-school level since 1980 and the re-introduction of cost-recovery measures in primary schools in 1991, also appear to have had the effect of increasing some inequalities. Given the social preferences of many parents to invest in the education of boys, this has been particularly relevant to the persistence of gender differences in enrolment in secondary schools. Increases in the direct costs of schooling to pupils and parents are likely to have encouraged those with fewest home resources to drop out disproportionately. This, taken with continued high unemployment amongst 'O' level graduates, has not encouraged greater retention rates. Arguably, children are getting increasingly frustrated seeing their brothers and sisters, who successfully completed their 'O' level studies, doing nothing and/or working casually in informal-sector activities. This raises curricular issues and questions about the extent to which existing secondary schooling constitutes an adequate and appropriate preparation for the opportunities for work and livelihoods that are likely to exist. It suggests that further expansion of participation in secondary schooling must recognize needs to promote employable skills and address the learning needs of those who will not continue to study and who will work outside public-sector employment.

The use of untrained 'O' level graduates and teacher trainees as full-time temporary teachers and the use of double-sessions using the same school facilities was helpful in lowering the short-term costs of expansion. Double-session working in Zimbabwe does not save salary costs, since additional teachers are employed. It does contribute to a lowering of fixed costs per pupil and the more efficient use of the capital stock of buildings, etc. It may be that the use of temporary teachers and double-session schooling has exacerbated problems with school quality, though empirical support for this proposition is not available. Without these measures it is clear that enrolment gains would have taken longer to achieve. The scope for these strategies to support expansion in the future is limited, but should not be ignored. It remains attractive to use school facilities as intensively as is feasible, whilst the stock of buildings is gradually expanded. In principle there are many attractions to continuing to employ a proportion of temporary and untrained teachers prior to initial qualification as teachers. If such staff are mentored by experienced teachers, serve for one to three years as teaching assistants as a pre-qualifying period for training, and are paid at lower rates than fully qualified teachers, there may be gains for all those involved. More pupils can be enrolled at lower pupil/teacher ratios with lower costs than would otherwise be the case. Teaching assistants can acquire skills on the job. Those who decide teaching is not their chosen vocation can alter career pathways before the public expense of initial training is incurred.

If, as seems likely, the overall public resources allocated to education are unlikely to grow in real terms, then improvements in access, retention and quality have to be largely financed from improvements in distribution, more efficient use of existing resources, and the maximum use of alternative sources of funding. Taking these in turn, first the analysis raises distribution questions which require more detailed data to explore than those available. Some gains are likely to be available from redistributing public subsidies towards those communities with the least ability to locally finance improvements. How much effect this would have could be ascertained from examining which subsidies might be re-profiled to favour the most disadvantaged. Second, efficiency gains are probably available from within the school system. Identifying where these opportunities lie depends on an analysis of school-level income and expenditure and, in particular, the deployment and utilization of the most expensive resource-trained teachers. Third, the prospects for significant growth in alternative sources of funding do not seem extensive. The current climate of economic austerity is likely to suppress incomes and may do so disproportionately amongst the poorest. Where communities are willing and able to maintain and increase levels of private and community-level subsidy, it would seem essential to continue to encourage this, despite possible consequences for equity. The alternatives, which might discourage such contributions, would simply increase pressures on the public budget or diminish quality, or both. More constructive responses would offer more incentives for contributions through matching grants coupled with safety nets, which would work to diminish inequalities arising from variations in community and private resources.

Seventeen years after the attainment of independence, the government has carried out a major education review, including representation from government ministries, universities, the private sector, other stakeholders and interest groups, and NGOs. The areas reviewed include financing of the education system; curricula relevance; equity and quality issues; conditions of service for teachers, school governance, other forms of education provision, such as out-of-school distance learning and/or single-teacher schools in sparsely populated, remote and isolated rural districts; and the vocationalization of secondary education.

Currently, the construction of new primary and secondary schools is being discouraged, except in newly settled areas, commercial farming areas and those disadvantaged rural areas which still need these facilities. It is hoped that this will allow consolidation of gains in enrolment rates and permit additional funds to be allocated to improve the facilities and learning materials in existing schools, especially those under rural district councils. The policy is aimed at improving the quality of education offered at all schools, irrespective of type. It may be that this is a precondition for the further expansion of secondary enrolments, given the constraints on public-sector spending.

The secondary gross enrolment rate stands at about 44 per cent. This implies, at best, that about 30 per cent of Zimbabwean children are reaching 'O' level, of whom perhaps half fail to achieve pass grades. Thus, about 15 per cent of the age group appears to be entering the labour market with successfully completed secondary schooling. The inference is that the Zimbabwean labour force currently includes well below 10 per cent of its workforce with successfully completed secondary schooling. The question is therefore posed whether this rate of output will be sufficient in quantity and quality to increase the numbers of secondary-educated workers in the labour force to levels which will meet the future needs of the economy for middle-level personnel and those with abstract and analytical thinking skills, unlikely to be developed and consolidated through completion of the primary grades alone.

In conclusion, it seems appropriate to suggest that it is important, to review how to make better use of existing capacity and extend opportunities to participate in secondary-level education without unsustainable cost burdens. A creative approach to this needs not only to explore how schools can be more efficient working in conventional full-time class teaching modes, but also whether the resources available can be used to contribute to less conventional modes of delivery. Distance and mixed-mode education (formal/on-the-job/part-time, etc.) have played a significant role in the development of secondary education. The potentialities of developing more flexible use of the resource that secondary schools represent are considerable. This would be one way of increasing both the quantity and quality of secondary-educated citizens, especially if teacher supply is adversely affected by HIV/AIDS. Without some reconceptualization of this kind, it would seem likely that enrolment growth and participation at secondary will stagnate at current levels.

## Chapter V

# Secondary schooling in Malawi: the challenge of financing enrolment growth

*Keith M. Lewin*

## Introduction

Malawi has some of the lowest enrolment rates at secondary level in sub-Saharan Africa. The secondary gross enrolment rate was estimated at about 4 per cent in 1985 and had only reached 6 per cent by 1995 (UNESCO, 1998). Only one-third of those enrolled in government secondary schools are girls. Over the past two decades the transition rate into secondary schools from primary has remained low. In 1997 about 147,000 pupils were in the final grade of primary school and were competing for about 11,000 new places in government secondary schools. Correcting this for repeaters gives a nominal transition rate of about 10 per cent.[1]

Historically, low enrolment rates at secondary have been associated with low levels of participation at primary. Gross enrolment rates at primary averaged about 65 per cent in the early 1990s and repeaters occupied 15-20 per cent of all primary-school places. It appears that as many as 20 per cent of Grade 1 pupils drop out before reaching Grade 2.[2] The number of pupils enrolled in Grade 8, the end of the primary system, is currently about 18 per cent of the number enrolled in Grade 1, giving some idea of the magnitude of the attrition resulting from drop-out.

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[1] Excluding those enrolling in the Malawi College of Distance Education (see below).

[2] Official drop-out rates (up to 28 per cent from Grade 1 to Grade 2 in the 1997 school census report) appear to exaggerate the magnitude of drop-out. Case-study data under development (Chimombo, 1999, personal communication) indicate that estimates may be based on inflated enrolment figures for Grade 1 and are often unreliable.

In 1994 the Malawi government adopted a policy of Free Primary Education (FPE) designed to universalize access. This resulted in a massive increase in the number of primary students – from about 1.9 million to over 3 million by 1995. Necessarily, the proportion of the national education budget allocated to support primary schools has increased substantially. This has placed severe constraints on the financing of secondary schools, not least because the average cost of secondary school places remains relatively high. The cost per pupil of places in normal government secondary schools can be as high as seven or more times that in government primary schools and is higher in boarding institutions.

Given the very low secondary enrolment rates in Malawi[3] the question is under what circumstances might it be possible to increase participation at secondary level in a financially sustainable way? This chapter explores this question by first outlining broad features of the Malawi education system. Second, it provides detailed insights into the provision of secondary schooling in Malawi, discusses methods of financing, and identifies costs per pupil related to different types of schools. Third, the chapter develops a simulation of how resource needs are likely to grow under different plausible scenarios. Finally, the chapter summarizes the issues for policy and practice that arise from the analysis.

## 1. Background

Malawi is one of the poorest countries in Africa with a GNP per capita of US$170 in 1995 (750 $PPP). Adult illiteracy is estimated at 44 per cent and is much greater amongst women than men (58 per cent – 28 per cent). Child mortality is amongst the highest in the world (234/1,000 for children under five years). Malawi has a population which the most recent estimates suggest is about 9.5 million, well below predictions of the last census (1987) which predicted over 11 million. The current growth rate in population has not been clearly determined, but it has probably fallen from over 3 per cent to not much more than 2 per cent.[4] Over 45 per cent of the population is under 15 years old. Most of the population is rural (85 per cent) and agriculturally dependent.

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[3] Malawi does have a long primary cycle (eight years), which in some countries would include lower-secondary grades. The enrolment of secondary-level pupils is very low both because transition rates are small and because attrition through the primary grades is so high.

Participation rates at primary and secondary level have been amongst the lowest in Sub-Saharan Africa and repetition and drop-out remain at high levels throughout the education system. Malawi has recently emerged from a period of one-party government, during which time educational development was modest. The new government has emphasized the importance of universalizing primary education, investing more in the development of secondary schooling, and maintaining the higher education system. It has increased the proportion of the national budget allocated to education.

Structurally, Malawi's school system consists of eight years of primary schooling followed by four years of secondary. In principle, all children are eligible for free primary schooling provided through more than 3,700 primary schools. Progress through primary schools is determined by school promotion tests. In most grades, repetition exceeds 15 per cent and can be as high as 25 per cent. Selection into secondary school is determined by the Malawi Primary School Leaving Examination, which allows less than 10 per cent of those who sit to obtain secondary-school places in normal government secondary schools. Secondary schools are organized into junior and senior cycles with a selection examination after the first two years (Junior School Certificate, or JSC), which the great majority pass. At the end of the secondary cycle, the Malawi School Certificate of Education (MSCE) examination controls access to post-school education and training. Pass rates in these examinations vary between about 30 per cent and 60 per cent. Those obtaining full certification in five subjects are a smaller proportion. Very small numbers (1,000-1,500 a year) are admitted into university-level courses in the University of Malawi.

Primary-school enrolments increased from about 900,000 in 1984 to about 1.9 million in 1994. After the introduction of free primary education (FPE) in 1994, primary-school enrolments peaked at 3.2 million in 1994/1995. Subsequently, enrolments fell back to 2.9 million in 1995/1996 and diminished further to 2.8 million by 1998.

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[4] Preliminary results from the 1997 census are just becoming available. Though some of the difference in population size between this and the previous census may be accounted for by refugees returning to Mozambique, not all of the shortfall can be explained this way. No figures are available for the growth in the school-age cohort, but an informed guess might place this between 2 per cent and 2.5 per cent.

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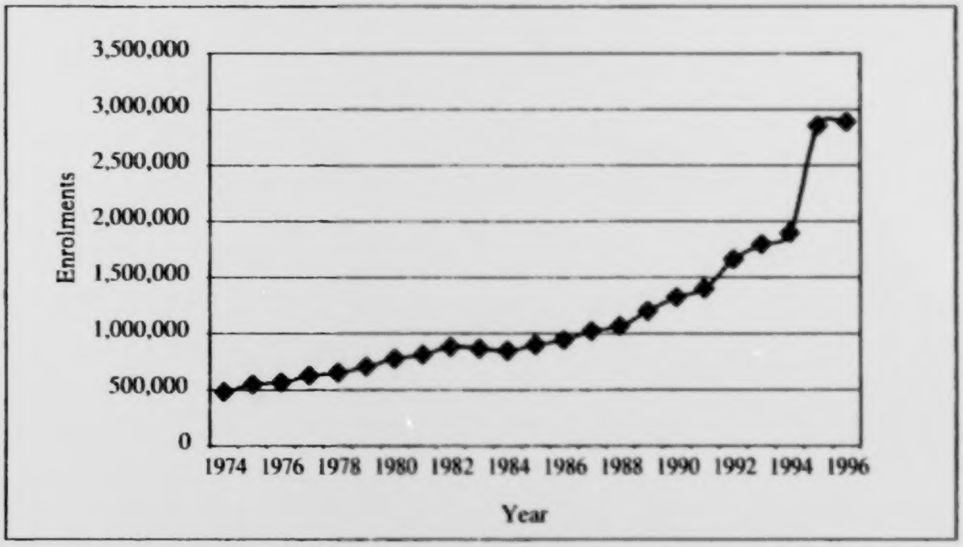
Much of the expanded enrolment has been in Grade 1, which increased from about 500,000 to over 1 million in the year of implementation of FPE. In 1995/96 there were about 47,000 primary teachers in Malawi, of whom more than 30 per cent were unqualified. More than 20,000 new primary teachers have been recruited – an increase in the total number of primary teachers by as much as 40 per cent – to meet the demand for new teachers. These teachers are being paid at rates below those for fully qualified teachers (until they qualify). Nevertheless, the budgetary impact of their salaries is substantial. All the direct costs of primary schooling are met by the government. The growth of primary school enrolments is shown below in *Chart 5.1*.

Chart 5.1 Primary enrolments by year, 1974-1996



There are several recognized categories of secondary school – government boarding, where boarding is provided at nominal cost to pupils; government day schools, where boarding is very common but is partly financed from fees[5]; and grant-aided schools, which receive a government subsidy related to school size, have the salaries of government teachers paid, and charge fees to cover other costs. Government-supported schools are now all called conventional secondary schools (CSS). The Malawi College of Distance Education (MCDE) organizes a large number of schools in which teachers' salaries are paid by the government and which charge fees to students. These schools are now designated Community Day Secondary Schools (CDSS). Private schools are growing in number. In these everything is financed from fees and contributions. There are four national government boarding schools, 23 day CSS, 33 Boarding CSS, 27 grant-aided schools, and over 400 MCDE schools. At least 137 private schools exist and an unknown number are unregistered. *Table 5.1* shows the number of schools by type and their enrolments.

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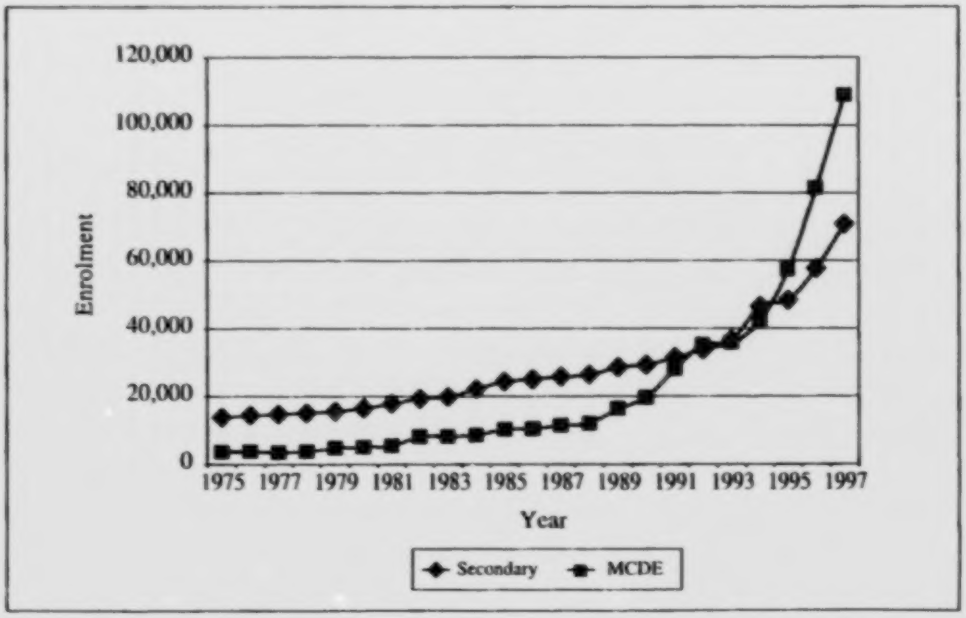
[5] Fees probably account for about 10 per cent of boarding costs.

Table 5.1 School type by number of schools and enrolments, 1997

| | CSS day | CSS boarding | CSS G aided | National boarding | Government total | MCDE | Private | Total |
|---|---|---|---|---|---|---|---|---|
| Schools | 23 | 33 | 27 | 4 | 87 | 401 | 137 | |
| Enrolment | 17,429 | 15,000 | 10,000 | 1,500 | 43,929 | 108,846 | 21,712 | 174,487 |

In 1997 all types of government and grant-aided schools enrolled about 44,000 students, the Malawi College of Distance Education (MCDE) 109,000, and private schools about 22,000. In addition there were about 1,000 students in technical schools. Government secondary schools employ about 3,000 teachers; a further 2,500 are in the MCDE system. The growth in enrolments in secondary schools (government, maintained and private) and in the MCDE system is shown in *Chart 5.2*.

Chart 5.2 Enrolments in secondary schools and in MCDE schools, 1975-1997



From *Chart 5.2* it is clear that there has been a rapid increase in enrolments in the MCDE. In 1993/1994 the MCDE system enrolled about 56,000 pupils; by 1997 this number had nearly doubled. The numbers known to be in private schools increased by about 50 per cent over the same period.[6] In contrast there was only a modest growth in the numbers enrolled in government secondary schools.

In 1985, Malawi allocated about 3.5 per cent of its GNP to education. By 1998 this had risen to over 5.5 per cent. The proportion of the public expenditure budget allocated to education has grown from about 11 per cent in 1990 to 27 per cent in 1994/1995 and was projected at about 30 per cent for 1997/1998. Within these amounts primary education has seen its share increase from about 45 per cent in 1990 to around 50 per cent in 1994 and over 60 per cent in 1997/1998. *Chart 5.3* shows these proportions. The effects of the recent emphasis on primary schools is evident.

Chart 5.3 Recurrent allocation to education – Percentage of total

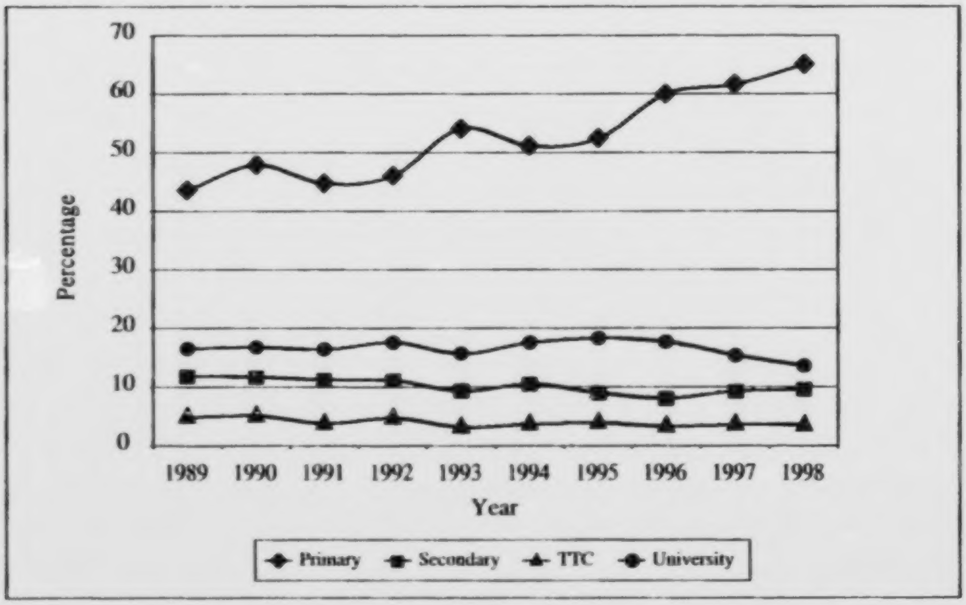


*Chart 5.3* shows that allocations to the university are consistently more than those made to the secondary school system. Typically, twice as much has been allocated to the university than to the secondary schools in most recent years.

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[6] The real increase was certainly more than this, but since many schools are not registered the actual numbers enrolled are not known.

The most recent official estimates of unit costs at different levels of the education system are shown below (*Table 5.2*). These are calculated simply by dividing the public recurrent expenditure at each level by the numbers enrolled. Prices are in current Malawi Kwacha.

Table 5.2 Public unit costs of schools 1995/1996 (Malawi Kwacha)

| | 1995/1996 | 1996/1997 |
|---|---|---|
| Primary | 195 | 244 |
| Secondary | 1,315 | 1,506 |
| Secondary MCDE | 170 | 83 |
| Teacher training | 10,510 | 5,200 |
| University | 42,790 | 42,915 |

*Source:* Government of Malawi Basic Statistics, Malawi, 1997 (*Table 8.2*).

Unit costs at secondary appear to be about six times those at primary. University unit costs are over 150 times those at primary. MCDE unit cost appears to have fallen to about a third of those at secondary as enrolments have expanded rapidly. These figures are based on the MCDE budget, which does not include the salary costs of teachers and is therefore a significant underestimate of costs.

The amounts for Teacher Training only cover some of the costs of the system. The Malawi Integrated In-service Teacher Education Project (MIITEP) provides short residential periods of training coupled with in-service support (DSE, 1998). The unit costs reported do not represent the full costs of training, since they do not include the non-College costs or the externally financed elements, which are substantial (Kunje and Lewin, 1999).

The Policy and Investment Framework (PIF) of the Malawi Government provides details of educational policy commitments which relate to secondary schools and this indicates commitments to:

- increase access to secondary schools by improving transition rates from primary to secondary to 30 per cent. This will be achieved by a large expansion in the number of secondary schools. In the first phase it is planned to build 63 day schools in rural areas;
- encourage the development of private secondary schools;
- reduce double shifting where this is feasible by opening additional secondary schools;
- undertake a curriculum review to support more equitable access and improve quality;

- increase the number of places in secondary schools for girls;
- increase the number of secondary teachers in training and train those who are unqualified;
- establish a textbook fund to improve the supply of books.

Some of the implications of these commitments are explored later in this analysis.

## 2. Characteristics of the secondary-school system

It is possible to profile key characteristics of the Malawi secondary-school system using data drawn from the 1996 school census. A data set was developed which included all the government, government-maintained and MCDE schools. Those private schools making returns to the census were also included, but this group may not be representative of all private schools. Data on enrolments and staffing were linked to financial information and to data on pass rates in examinations. *Table 5.3* shows how types of schools varied on basic parameters.

Table 5.3 Characteristics of Malawi secondary schools, 1995/1996

| School type | Average number of teachers | Average enrolment | Average pupil/ teacher ratio | Average number of teaching periods | Average number of pupils/ class | Average number of teachers/ class | MCSE pass rate |
|---|---|---|---|---|---|---|---|
| Government boarding | 25.8 | 427 | 16.4 | 22.0 | 34.8 | 2.1 | 53.7 |
| Government day | 17.3 | 438 | 29.7 | 24.8 | 43.7 | 1.6 | 52.1 |
| Grant aided | 16.4 | 388 | 24.2 | 24.1 | 44.1 | 1.8 | 64.1 |
| MCDE (day) | 6.8 | 373 | 55.0 | 19.0 | 98.6 | 2.0 | 11.6 |
| Private | 11.4 | 274 | 24.5 | 22.6 | 42.0 | 1.8 | 55.3 |

Boarding, government and grant-aided schools are similar in terms of average size, with around 400 students. Amongst these 75 schools, nine have enrolments below 300, and five have more than 700 enrolled. Most schools are built for a three or four-form entry of 40 pupils per class. MCDE schools enrolled about 350 pupils on average in 1996.[7] Private schools on which there are data tend to be smaller, with an average of about 270 enrolled.

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[7] Enrolments in the MCDE system appear to have been growing faster than the number of schools. If this is true, average school size will have increased.

The pupil/teacher ratio is as low as 16:1 in government boarding schools, and between 25:1 and 30:1 in government day and grant-aided schools, respectively. The figures for private schools are unlikely to be representative and are changing rapidly as this sector expands. It is probable that pupil/teacher ratios are worsening and class sizes growing – there are certainly cases where over 100 pupils are enrolled in a class in private schools. This is not likely in government and government-aided schools. In some private schools, teaching loads may also be relatively light as a result of teaching large class groups together. In one school visited, teachers averaged about 14 periods per week, but taught groups in excess of 90 pupils. These teaching loads and class sizes are comparable to MCDE schools.

Pupil/teacher ratios in MCDE schools are much higher than in other schools and average about 51:1 at this time. Overall, the number of pupils per class group exceeds 90:1 in the MCDE system, compared to averages of between 34 and 44 in government schools. The number of teachers per class varies between 1.6:1 and 2:1. Notably, MCDE teachers average about 40 per cent fewer teaching periods per week than teachers in other schools. Thus, very large class groups are organized which allow low teaching loads. If teaching loads were similar to those of other teachers[8], groups would be smaller. For example, in one MCDE school visited the pupil/teacher ratio was nearly 60:1; there were 715 pupils enrolled and teaching groups for Forms 1 to 4 respectively were 91, 118, 102, 102.

In 1995, examination pass rates at the Malawi School Certificate of Education in government schools averaged around 53 per cent and reached about 64 per cent for the grant-maintained schools, many of which are run by Missions. There was no clear relationship between pass rates and the pupil/teacher ratio, which is the prime determinant of cost per pupil. *Chart 5.4* shows this.

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[8] MCDE schools tend to function as normal secondary schools, in the sense that pupils attend (or board) on a regular basis and are taught each day by teachers presenting material from specially produced collections of teaching material. These collections are made up of learning material, some of which is reprinted from conventional textbooks. Unlike normal secondary schools, there is considerable study time available when formal teaching is not taking place, but this is often unsupervised. In many cases, the building facilities are insufficient to house all pupils and classes are held outside.

Chart 5.4 Pass rate at MSCE by pupil teacher ratio – Government and grant-maintained schools

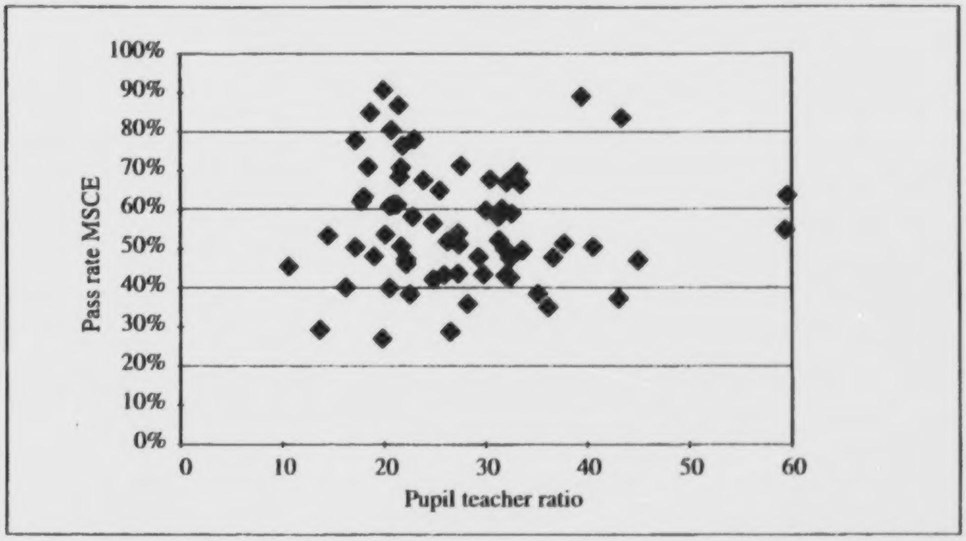


*Chart 5.4* illustrates not only that PTR is unrelated in any simple way to examination performance, but also that PTRs vary over a wide range in these schools. Though the average is about 25:1 there are a significant number of schools with ratios as low as 15:1 and others that exceed 40:1. An increase in the lowest ratios to values closer to the average would lower average costs per pupil. It would seem unlikely that increases of this kind would adversely affect the pass rate at MSCE, since these pass rates varied widely in 1995 in ways which appear to be independent of simple relationships with PTR and costs per pupil (*Chart 5.5*).

During the same period the pass rates in MCDE schools were very low and averaged around 11 per cent. These rates also do not appear simply related to pupil/teacher ratios or to class size. *Chart 5.6* illustrates average class sizes and performance on MSCE in 1995. The range of pass rates is wide. Some schools have pass rates that exceed 25 per cent, but in many only less than 5 per cent of those who enter succeed in passing. Class sizes exceeding 150 are not uncommon in these schools and this almost invariably means teaching taking place outdoors or in and around classrooms. MCDE are thus very inefficient if judged by the numbers of students that successfully graduate.

Chart 5.5 Pass rate at MSCE by cost per pupil – Government and Government-assisted schools

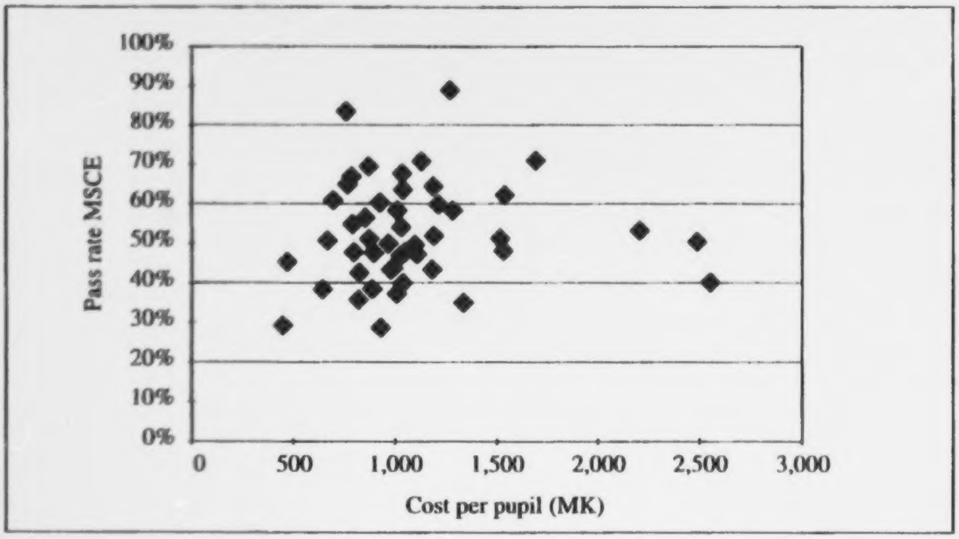
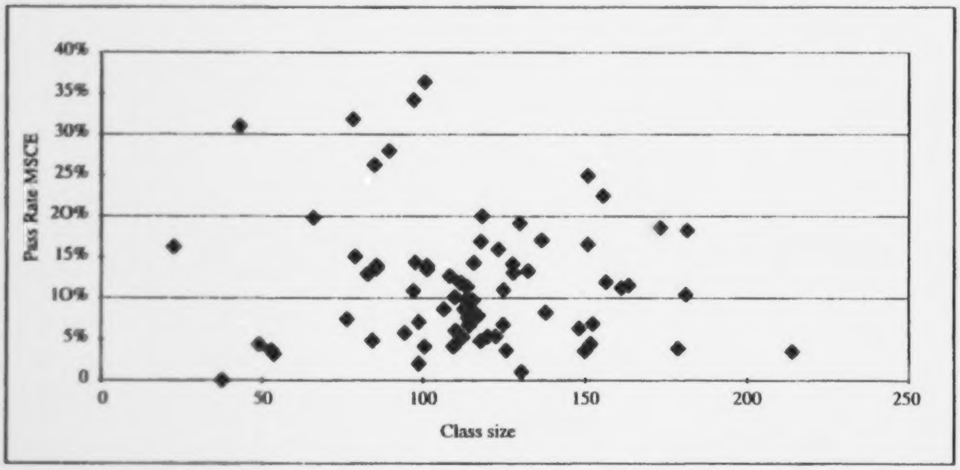


Chart 5.6 Pass rate at MSCE by class size – MCDE schools



Since 1995 pass rates have deteriorated. The most recent data from 1997 produce the pattern shown in *Table 5.4*.

Table 5.4 Pass rates (%) at MSCE by school type, 1997

| | CSS day | CSS board | CSS grant-aided | National type | Government average | MCDE | Private[9] |
|---|---|---|---|---|---|---|---|
| Pass rate % | 28 | 33 | 60 | 55 | 36 | 8 | 34 |

Average pass rates in all government schools have fallen to about 36 per cent. MCDE pass rates are now below 8 per cent and have diminished as enrolments have rapidly increased. This indicates that both systems are deteriorating in internal efficiency and that the cost per successful completer will be rising as pass rates decline.

As noted above, the transition rate into secondary schools in Malawi is very low. This creates considerable pressure on entrance to government secondary schools. Those who do not get admitted have only two options – the MCDE system, which has low quality and relatively low public costs, or private schools, which have been developing rapidly since 1994 to meet excess demand. It is apparently the case that many private secondary schools are now setting their own entrance-examination tests to select new pupils. It is believed by some that this is a more reliable method than using the results of the Primary School Leaving Certificate. It is also the case that some of the more popular MCDE centres operate selection tests of their own design to limit access.

Double shifting is not common in government and grant-aided secondary schools. Given the shortage of places in secondary schools this is surprising. Four government day secondary schools have been involved in an experimental period of double-shift schooling, whereby two shifts attend the schools each day. This results in slightly shorter school hours for pupils and teachers. This system makes more efficient use of the physical facilities and reduces overheads associated with the buildings and equipment. Evaluation studies (Kadzimira et al., 1995) show no significant differences in the performance of pupils at MSCE as a result of double shifting when performance is compared with control groups. Some teachers are attracted by the shorter hours they are required to teach in these schools. Since teachers are not used more intensively in these schools, savings are not produced in recurrent expenditure on teachers' salaries. The schools apparently remain relatively unpopular with parents, since they have shorter school days and longer periods when pupils are out of school, when one or both parents may be working.

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[9] Figures for private school costs are unreliable given the incomplete nature of data on their numbers and budgeting.

## 3. School finance and costs

Government schools are funded from the Ministry of Education (MOE) budget and estimates for each school were included in the Vote for the MOE until recently. Grant-aided schools receive income essentially on the basis of the number of students, the proportion of boarders and other special features that they may have. These schools may receive income from other sources and generally maintain their own financial accounting and auditing systems. The MCDE system also receives a budget directly from the MOE, but this does not include the salary costs of teachers. An overall picture of income and expenditure is therefore not readily available.

Malawi has experienced considerable currency instability, bouts of high price inflation, and sporadic adjustments of salary levels of teachers to respond to increases in costs of living. This means it is difficult to trace patterns of expenditure year on year. It also means that whatever monies are allocated at the beginning of the financial year may have to be subvented during the year. The initial analysis here mostly uses costs in Kwacha for 1995/1996. At this time the Kwacha was valued at about US$0.07. Since 1996, there have been substantial further devaluations.[10]

Since the advent of FPE in 1994, primary schools have not charged school fees. Parents have to bear other direct costs in all or part – books, transport, food, uniforms etc. At secondary level fees continue to be charged at different rates for different schools. In government boarding schools a charge of MK125 was levied in 1995/1996 per term, along with a tuition fee of MK20 and a general fee of MK15. This fee income is insufficient to provide an adequate operating budget. In the four national boarding schools the difference between the fee income and related expenditure is met by additional subventions provided as and when needed. According to the principal of one of these schools a fee in excess of MK400 per term would have had to be charged in 1995/1996 (more than MK1,200 p.a.) to balance the budget in terms of direct boarding costs. This is in addition to the salary costs of teachers which are met by central government at generous pupil/teacher ratios of about 16:1.

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[10] The Malawi Kwacha was substantially devalued around the period just before the new government took office in 1994. From a value of about MK4 to the US$ in early 1994 it fell to about MK18 to the US$ by the end of 1994. It stabilized in 1995 at about MK15=US$1. More recently, currency fluctuations have driven the value of the Kwacha down to about MK45 to the US$ (1998).

Government day schools are not officially boarding schools. In practice, almost all students board. Fees are charged at the same rate as in official boarding schools (a total of about MK160 per term), but this is inadequate. In one of the government day schools visited, the revenue generated was sufficient to meet about half of the food bill for boarders. In 1994/1995 this school operated on a nominal expenditure of about MK1,070 per student, but this was subsequently supplemented by additional payments and provision of free rice. Government-assisted schools charge boarding and tuition fees. In one school visited these were about MK300 per term in 1994/1995. The principal argued that this would have to rise to over MK500 per term in 1995/1996 if the budget were to balance.

Private schools vary in fee policy and it has not been possible to explore the range of practice since data are not available. Some private schools associated with Missions were charging fees of MK1,700 per term or more in 1995, all but MK200 of which were attributed to boarding costs. Another private commercially run school visited in mid-1995 charged MK850 tuition and MK850 boarding fees per term.

MCDE fees are paid on entry to a two-year cycle leading to the Junior Certificate of Education (MK60) or the Malawi School Certificate of Education (MK50). These fees are therefore very low. Most of the MCDE centres charge an additional ‘Centre fee’ of around MK50, which is used to cover operating costs. Boarding charges are also additional and can be in the region of MK600 for 1995/1996. Boarding is organized on a commercial basis and there appears to be no regulation of the fees charged.

The cost of school books can be a large indirect cost. Texts in main subjects can cost MK50 or more for imported books. Up to eight different books are needed for each class at a total cost of up to MK400 for a complete range for a pupil. MCDE estimates the cost of production of its learning ‘sets’ at about MK25 in 1995. These units are paper-covered booklets of about 40 pages. There are 45 units at JCE level (total cost MK1,125) and 61 at MSCE level (total cost MK1,525). Enrolment fees for MCDE recoup only a very small proportion of this – less than 5 per cent. NGOs appear to be able to produce similar-quality materials at significantly less cost per booklet. MCDE booklets used to have to be collected from printing units. Since 1995, distribution is supposed to be direct to centres, but there remain problems with the supply and with late delivery.

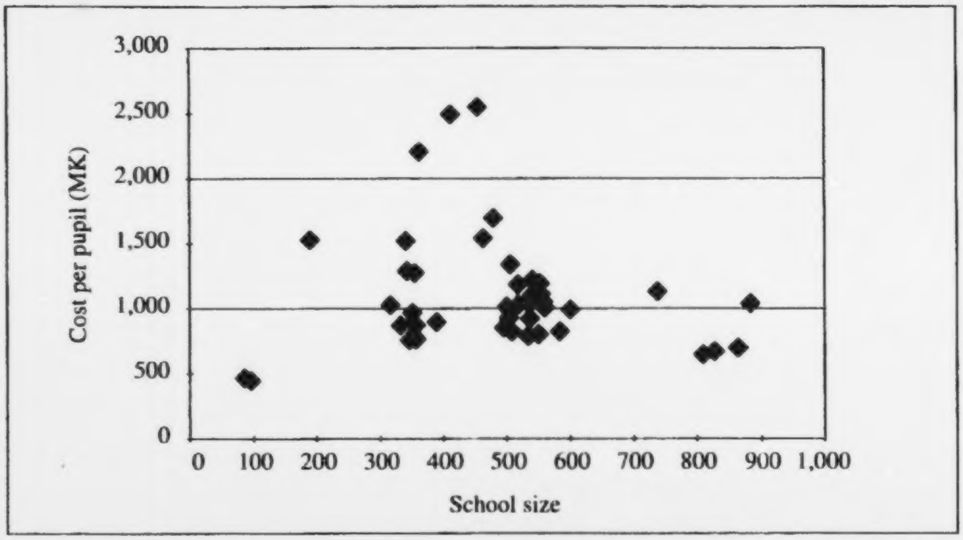
The costs of uniforms average about MK300. Other miscellaneous costs for writing materials, pocket money, etc., probably add up to another MK300 over a year in addition to the costs of textbooks. Private tuition is taken by some secondary pupils. The costs of this vary widely, but typically appeared to fall in the range of MK50-MK150 per month in 1995.

## 4. Patterns of expenditure per pupil

On the basis of budget data available in 1995, the unit expenditure in government boarding schools was calculated to be about MK2,240, and in government day schools about MK990 per pupil. This was likely to be an underestimate of the actual expenditure. The most common reason for this is the need to support additional boarding costs (in most government day schools many children board). In 1995, fees in government schools (see below) generated a half, or less, of the money needed to provide food for boarders, though this was during a period of price instability with rapid inflation. Free rice has been provided as part of emergency assistance to schools, in addition to supplementary additional payments to meet food bills. It seems probable that the actual unit cost of government schools in 1995 was up to MK1,500. Similarly, the unit cost of official boarding schools was probably significantly higher than the figures that can be derived from the budget statements and may have exceeded MK3,000.

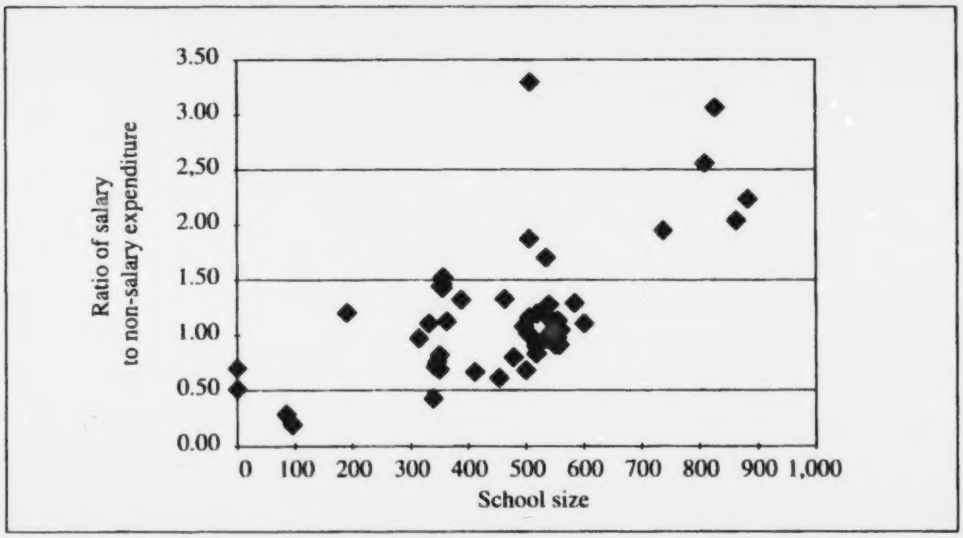
The public expenditure per pupil for government schools, using the raw MOE data from actual expenditure reported in the MOE Vote for 1995/96, is as shown in *Chart 5.7* below. The expenditure per pupil varies from below MK500 to more than MK2,500. The highest expenditures are in the government boarding schools. The range in government day schools is still large, varying over a range of 3:1. This may indicate scope for increases in internal efficiency in schools which have high unit costs. It is noticeable that most schools are clustered around enrolments of 300-400 and 500-600 representing 3- and 4-form entry schools. Schools with a 5-form entry appear cheaper per pupil than smaller schools (*Chart 5.7*).

Chart 5.7 Cost per pupil by school size – Government schools



Government day schools spent more on salaries than on non-salary expenditure. However, non-salary costs accounted for a surprisingly large amount - about 44 per cent of the total recurrent costs. In the boarding schools more was spent on non-salary expenditure, as might be expected – as much as 60 per cent of recurrent costs. There is a general tendency for larger schools to have a higher ratio of salary to non-salary expenditure, indicating that there are economies of scale. It is noticeable that many individual schools spend more on non-salary expenditure than salaries, which is unusual in many secondary school systems (*Chart 5.8*).

Chart 5.8 Ratio of salary to non-salary expenditure – Government schools



Public expenditure in grant-aided schools is made up of the salaries of government-supported teachers and the grant in aid. Schools receive grants based on enrolments. This was about MK145 per pupil in 1994. The data show variations between MK100 and MK200 per student across grant-aided schools for reasons that are not clear. The pupil/teacher ratio in these schools appears to average a little less than in government schools, making them more expensive. It would appear that public unit expenditure in these schools was probably around MK750 in 1994.

Additional expenditure in grant-aided schools is met from other sources, usually fees, endowments or contributions. There is no consolidated accounting system for grant-aided schools which can provide aggregate data on the non-government expenditure in these schools. From exemplary data on one established grant-aided school in Zomba, it appears that total expenditure per student financed from the grant, fees and other income was about MK670 in 1994, without including the salaries of government teachers or those contributing to teaching who are missionaries. Mission staff who teach were paid a flat rate salary (around MK1,600). Government teachers are paid at normal rates. If these teachers' salaries were included in this schools' budget, the overall unit cost would be comparable with government schools and probably averaged about MK1,500 in 1994. However, the cost to government is limited to the salary costs of the teachers supported and the grant in aid, which together would total around MK750.

The MCDE school system is difficult to cost. This is because of uncertainties in the number of pupils enrolled, the number of teachers employed and the actual budget allocations. In 1994 Ministry of Education statistics claimed that 56,300 pupils were enrolled in the MCDE system and that 405 teachers were employed. These teachers are primary-school teachers paid at rates comparable with other primary-school teachers. In the MCDE they teach at secondary level. MK6.7 million was listed as actual expenditure in 1994, giving a cost per pupil of MK119. Other estimates by MCDE suggest that only 42,300 were enrolled in 1994, which would mean the unit cost would rise to about MK160. As far as can be judged, the financial estimates omit teachers' salaries from the calculation, since these are paid from the primary education budget allocation. Assuming the MCDE teachers are paid about 20 per cent above the average for primary-school teachers (since they are relatively senior), this would add about MK70 per pupil to the public expenditure per pupil. This would bring total unit expenditure up to an average of about MK230 in 1994.

Uncertainties continue about the numbers enrolled in the MCDE system. Estimates for 1996 suggested that there were 81,000 pupils enrolled and about 2,000 teachers in the MCDE system. However, the numbers successfully passing the Junior Certificate after two years were only 22,000, and those succeeding at the Malawi School Certificate level after four years were a little less than 1,300. Though it is possible that 81,000 pupils were registered in some form, it seems unlikely that all attended consistently. If absenteeism was high, then cost per pupil will be higher than it would otherwise be. Private school costs are very variable and there is no way of analyzing what these are from any existing database. Expenditure and fees are unregulated and in many cases seem to be unaudited. A private school visited near Zomba with 365 pupils had a salary bill of around MK230,000 and a fee-based income of about MK390,000 from which all additional expenses had to be found, including the cost of food for boarders (in 1995). The salary expenditure per pupil in this school was about MK630 (mid-1995), suggesting that other expenditure might raise the total to around MK1,000 per pupil. Total expenditure in all private schools will depend greatly on the number of boarders, which is unknown.

It is possible to estimate how unit costs have changed over time between 1989 and 1998 in current and constant Malawi Kwacha. *Table 5.5* shows the result.[11]

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[11] The patterns shown in *Table 5.5* are not completely consistent with the estimates in the preceding text. This arises because of discrepancies in enrolment data from different sources, differences between budgeted and actual expenditure, and periods of high inflation and currency instability at different points in time.

Table 5.5 Unit costs in MK in current and constant (1991) prices[12]

| **Current prices** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 |
| Primary | 30 | 39 | 39 | 37 | 70 | 84 | 81 | 195 | 244 | 344 |
| Secondary | 345 | 425 | 435 | 441 | 592 | 706 | 828 | 1,315 | 1,506 | |
| TTC[13] | 1,573 | 1,886 | 1,432 | 1,880 | 2,119 | 3,178 | 5,547 | 10,510 | 5,200 | |
| University | 5,920 | 6,690 | 6,476 | 7318 | 11,199 | 14,990 | 22,622 | 42,793 | 42,915 | |
| **Constant prices** | | | | | | | | | | |
| | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 |
| Primary | 40 | 43 | 39 | 33 | 52 | 49 | 32 | 45 | 43 | 56 |
| Secondary | 458 | 472 | 435 | 387 | 436 | 410 | 321 | 307 | 263 | |
| TTC | 2,086 | 2,093 | 1,432 | 1,650 | 1,559 | 1,846 | 2,153 | 2,452 | 907 | |
| University | 7,853 | 7,423 | 6,476 | 6,424 | 8,242 | 8,708 | 8,782 | 9,984 | 7,484 | |

From *Table 5.5* it can be seen that real unit costs appear to have remained fairly constant in real terms at primary, and have fallen at secondary. On average, secondary unit costs remain about six times larger than those at primary. However, it appears that these figures underestimate secondary unit costs, since they include private students in the enrolments. These enrolments have become a significant proportion of the total. Thus, actual costs may be 30-40 per cent higher. University unit costs have remained over 150 times greater than those at primary. The unit cost of trainees in teacher-training colleges has varied as the system of training teachers has changed. Since this has involved changes in the length of training and the form of its delivery, direct comparisons between years are not simple. Most recently, the drop in real unit cost in 1997 reflects the introduction of the MIITEP training system. This annual unit cost applies to a programme that lasts for two years to produce a qualified teacher. It only reflects the costs of college-based work, not those of the field support system and therefore underestimates total costs. Neither does it include donor contributions, which are very substantial (Kunje and Lewin, 1999).

The estimates in *Table 5.5* do not include the MCDE system. The latest data suggest that overall pupil/teacher ratios in MCDE schools are about three times those in government secondary schools. Average salary costs are lower, because most teachers are primary qualified. The budgeted cost of the MCDE system only includes the administrators and workers and non-salary recurrent expenditure (primarily that on materials production). This gives a unit cost of MK83 if the latest enrolment figures (109,000 in 1997 statistics) are accepted. If teachers' salaries were included, the public unit cost can be estimated at about MK600 per pupil on 1998 salary rates and pupil/teacher ratios in MCDE. It needs to be noted that in the MCDE system, boarding and other costs are not subsidized and fall on parents directly. Total costs per pupil are therefore considerably greater than this estimate of MK600 for public costs.

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[12] *Source:* Ministry of Education with thanks to McPherson Jere and Mike Kiernan.

[13] The unit costs for TTCs only include college costs. Under the MIITEP training system, where trainees are trained whilst teaching, there are substantial additional support costs. We estimate these to result in actual unit costs of about MK20,000 (Kunje and Lewin, 1999).

A recent study (Conolly-Smith, 1999) provides estimates of public and total costs for different school types. The result is shown in *Table 5.6*.

Table 5.6 Cost per pupil by school type (MK)[14]

| School type | CSS day | CSS boarding | CSS grant-aided | National boarding | MCDE | Private[15] |
|---|---|---|---|---|---|---|
| Total cost per pupil | 3,181 | 4,739 | 4,732 | 6,700 | 4,218 | 7,462 |
| MOESC cost | 3,056 | 4,071 | 4,085 | 6,041 | 1,319 | 26 |
| Cost per successful graduate over 4 years | 45,438 | 5,7448 | 31,545 | 48,730 | 212,299 | 87,037 |

The figure for total costs includes estimates of donor contributions, fee income, other parents' contributions, supervision and examination costs and development budget expenditure. This gives an average total unit cost for government schools of around MK4,000. The average public cost is about MK3,500.

*Table 5.6* confirms the picture portrayed by the earlier analysis of costs. It suggests that the public cost of the MCDE system is about 35 per cent of the cost per student in most government schools. Its total costs per student are comparable or greater than in government schools with most of the burden being borne by parents. It also indicates that the cost per successful graduate in the MCDE system is extremely high as a result of the very low pass rates.

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[14] These figures are much higher than previous estimates in this chapter, since they are made after currency devaluation and inflation and reflect 1998/1999 prices.

[15] Figures for private school costs are unreliable given the incomplete nature of data on their numbers and budgeting.

## 5. A simulation

It is clear that Malawi faces very considerable challenges in sustaining the FPE programme and ensuring that GERs of over 100 per cent are maintained for the primary cycle. If access to secondary schools is to be expanded, the additional costs will have to be financed over and above the costs of maintaining FPE.

To explore the problems in more depth a simulation has been created using baseline statistical data from the most recent reports of the Ministry of Education. Enrolments, gross enrolment rates, and expenditure have been projected over 15 years under a number of different assumptions. The most important of these are the following:

- Baseline enrolment data for 1997 are used as a starting point. Primary enrolments in Grade 1 (about 820,000) are inflated by over-age entrants responding to FPE policy, which has temporarily created a bulge of new entrants who will move through the primary system over the next 10 years. As a result, gross enrolment rates at primary were probably about 120 per cent in 1997, but will gradually fall. Initial transition rates into secondary government schools and MCDE schools reflect those prevailing in 1997.
- Costs per pupil are based on the most recent estimates discussed above for public unit costs. The model generates costs as a multiple of current expenditure.
- Population growth is initially set at 2.5 per cent to reflect what appears to have been a decline from a historic value of about 3 per cent.

In summary, baseline data are as indicated in *Table 5.7*.

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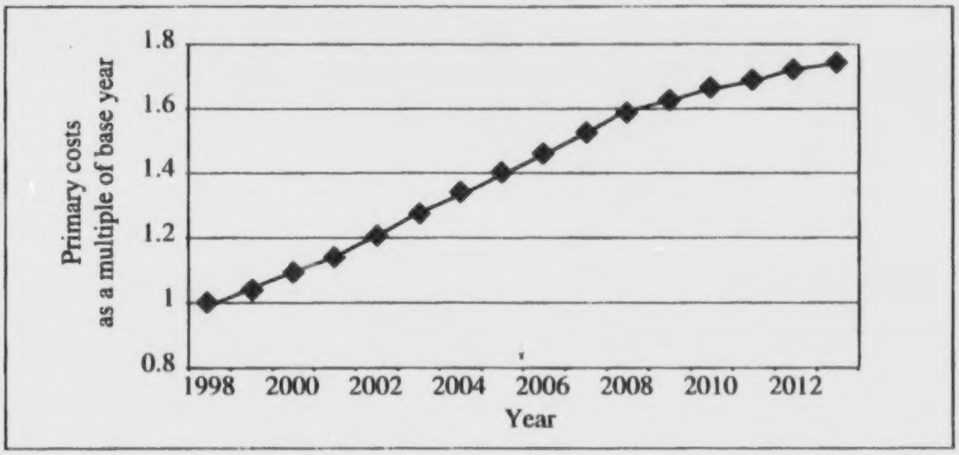
Table 5.7 Baseline data for Simulation 1

| Parameter | Simulation 1 |
|---|---|
| Population growth | 2.5% |
| Primary GER | 120% |
| Secondary GER (government + grant-aided) | 6% |
| Secondary GER MCDE | 13% |
| Unit cost ratio of secondary to primary | 7:1 |
| Repetition | 15-12% depending on grade |
| Promotion | 70%-80% in all grades except Grade 1 (63%) |
| Drop-out | Average 10% and higher in early grades |
| Pupil/teacher ratio | 75:1 |
| Teacher attrition | 5% |
| Secondary entry rate (government + grant-aided) | 7% |
| Secondary entry rate (MCDE) | 18% |
| Repetition government | 5% |
| Repetition (MCDE) | 10% |
| Promotion government | 98% |
| Promotion (MCDE) | 80% except from Grade 10-11 (40%) |
| Drop-out government | Averaging 1-2% initially |
| Drop-out (MCDE) | 10% except from Grade 10-11 |
| Pupil/teacher ratio | 20:1 |
| Pupil/teacher ratio (MCDE) | 50:1 |
| Teacher attrition | 5% |
| Teacher attrition | 5% |

The Policy and Investment Framework assumes that it will be possible to increase the transition rate into secondary to 30 per cent from its current low level with a pupil/teacher ratio of 30:1. Recent plans appear to include absorbing all or some MCDE schools into the regular school system. It also assumes that primary GERs will be maintained at over 100 per cent and that the high rates of drop-out and repetition will be reduced. Target pupil/teacher ratios at primary are 1:60. Recent estimates suggest that they are currently around 75:1 (Kunje and Lewin, 1999).

The first simulation focuses on the cost implications of meeting the requirements for maintaining FPE. In Simulation 1 the costs of a system which achieves a pupil/teacher ratio of 60:1, with repetition and drop-out falling over 10 years to maximum values of 5 per cent in each grade, except grade 8 (10 per cent), are shown. *Chart 5.9* shows this scenario.

Chart 5.9 Primary costs as a multiple of base year – GER 100 and reduced repetition and drop-out



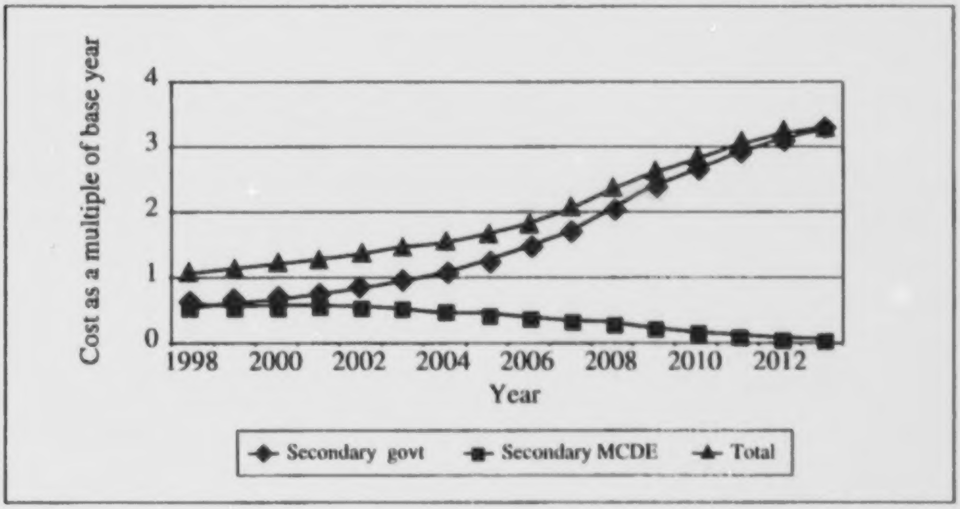
Over a 15-year period the total cost of the primary system would increase by about 75 per cent. If there was significant investment to improve quality which resulted in higher unit costs, this would inflate the figure. Pupil/teacher ratios of 1:60 imply that class-size averages are significantly greater, since not all teachers teach all periods. If the pupil/teacher ratio were reduced to 1:45, as suggested as a long-term goal in the PIF, costs would increase by a third to about 2.3 times current costs. Real increases in teachers' salaries would also increase the costs.

In brief, the commitment to maintain FPE implies that recurrent expenditure on primary alone will have to at least double in real terms if modest improvements in internal efficiency are to be achieved. This is the context against which the problems of financing expanded secondary schooling have to be considered.

The second set of simulations considers the costs of expanding the existing government secondary-school system simplified into all normal government schools, and MCDE schools. Gross enrolment rates at secondary are about 6 per cent in normal government schools and 13 per cent in the MCDE system. The long-term aim is to replace MCDE schools by government day secondary schools. MCDE schools are recognized as inefficient, have very large class sizes and extremely low pass rates. Most of the MCDE costs are borne by parents, with the public cost averaging around a third of that in government schools. The key questions are on what basis could expansion be financed and what would be the public costs?

*Chart 5.10* shows the result of progressively converting MCDE schools into normal government schools at existing levels of unit costs in government schools. The projection absorbs the consequences of maintaining FPE as described above in terms of the output of primary graduates.

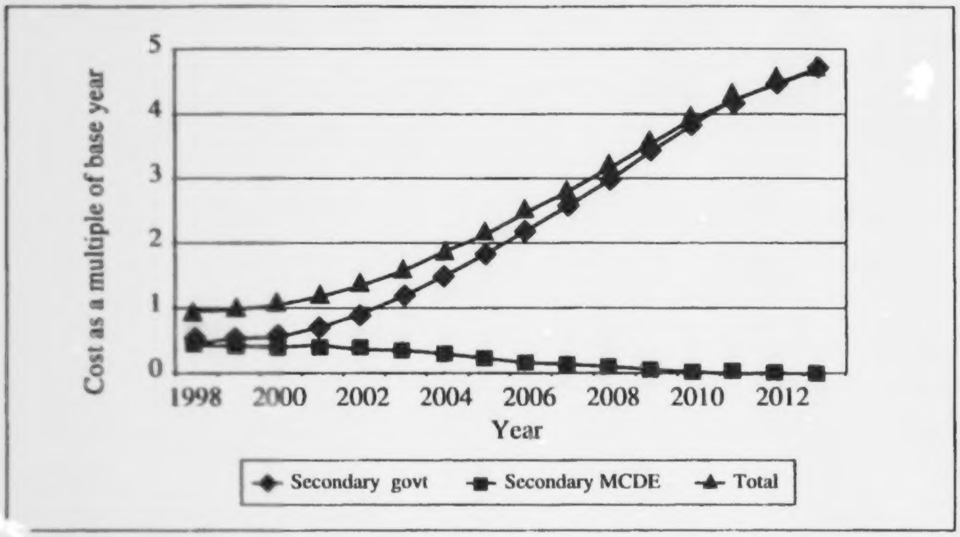
Chart 5.10 Secondary costs as a multiple of base-year costs



The result is an escalation by a factor of more than 3 in the recurrent costs of secondary schooling. This would result in a system where the secondary gross enrolment rate remained about 20 per cent and all schools operated at pupil/teacher ratios found in existing government schools (20:1). It also assumes that drop-out and repetition would be about 5 per cent in the expanded system.

The estimates need further modification. They assume that the pupil/teacher ratio remains at about 20:1. If this were increased to 30:1 at the secondary level, costs would fall. On the other hand, costs would increase if the transition rate into secondary were to meet the stated target of at least 30 per cent of primary graduates by 2005. Further, if the target for secondary gross enrolment rate were set at 40 per cent after 10 years (suggesting a net enrolment rate at secondary of perhaps 30 per cent), then costs would increase further. If these modifications are included, Chart 5.10 is the result. This shows an increase in the cost of the secondary system by a factor of 4.5.

Chart 5.11 Secondary costs as a multiple of base-year costs



Several other issues are significant for these discussions. First, it may be that the public costs of an expanded secondary-school system can be below those of existing government schools. The MCDE system operates at total costs which are comparable to those in government schools, but two-thirds of these costs are met by fees paid privately. The question is if the schools are converted would it continue to be possible to levy relatively high fees when fees in other government schools are low? Government school fees are currently only 5 per cent – 15 per cent of those in MCDE schools. Even if this were possible it is self-evident that the MCDE system makes poor use of amounts of per-pupil expenditure similar to those in government schools. Teaching groups are often over 100, much teaching takes place outside classrooms and with inadequate teaching materials, and teachers teach few periods per day compared to those in ordinary secondary schools. Fee-paying alone seems unable to create pressure for the more effective use of the income to MCDE schools and this raises the question of what might happen in a reformed system with high fees for normal government schools. Would such additional income be allocated to improved learning conditions?

Second, despite the problems noted above, it is possible to imagine a phased increase in fees for secondary schooling. Capacity clearly exists to make such contributions from private income. High fees have not acted as a brake on either the rapid growth of the MCDE system or that of private schools. Private schools have mushroomed in the years since 1994 and now enrol about 22,000 students at fee levels which are about twice the cost per pupil in government schools and MCDE. These schools operate at high pupil/teacher ratios (70:1), but appear to achieve pass rates similar to those in government day schools. This is unlike the MCDE system, where high failure coexists with relatively high direct costs to parents. There would therefore seem to be critical policy questions concerning how more fee income might be captured to assist in the public finance of secondary schools of higher quality. It is difficult to believe that the demand for MCDE enrolment will continue to grow unless pass rates and performance increase. The very high costs of private secondary schooling are likely to act as a constraint on its growth, especially if the economy does not grow and real growth in incomes does not occur.

Third, the estimates generated take no account of the costs of training new teachers at primary and secondary level. These appear considerable. Our estimates suggest that a primary teacher trained under MIITEP costs at least MK22,500 (US$500) per trainee to train. This excludes the start-up costs to develop materials and infrastructure and the costs of expatriate advisers (Kunje and Lewin, 1999). Ministry estimates for conventional training of secondary teachers estimate that at least MK45,000 (US$1,000) is needed for one year of training. The demand for new primary teachers generated by the FPE simulations is almost certainly over 7,000 if targets for the pupil/teacher ratio are to be met. This generates costs of at least MK158 million (US$3.5 million) to which must be added the costs of training secondary teachers. The demand for these could rise to 1,500 to 2,000 per year, depending on the rate of expansion, adding a further recurrent cost of MK90 million (US$2 million).

Fourth, these projections are sensitive to demographic changes. In particular, it seems that population growth may fall and attrition rates amongst teachers appear to be rising as a result of HIV. In the simulations, teacher attrition rates have been set at 5 per cent. These could be exceeded through a combination of sickness and choice of alternative career if remuneration does not match that available in the private sector. Either of these developments would have a major impact on teacher supply and costs to the extent that they might double. In the longer term the prospects for economic growth will also be adversely affected by any rise in mortality rates amongst the economically active, which would then deplete the government budget further.

## 6. Some concluding observations

The simple story is therefore that to sustain FPE significant increases in educational expenditure will be needed, which are unlikely to be less than double current expenditure in 15 years' time. Whatever amounts may be available from economic growth will be absorbed by the demands of sustaining FPE, which is likely to remain high on the government's list of priorities. If growth is less than 3 per cent in the government budget, FPE will be at risk without external assistance.

If secondary access were to be expanded at unit costs comparable to those in government schools, to achieve a gross enrolment rate of 40 per cent after 15 years as much as five times current expenditure on secondary would be needed. If this occurred, the total public cost of the secondary system would be about half that of the primary system. Overall, the costs of primary and secondary together would approach four times current levels. This is well beyond any conceivable growth in the government budget for education, even assuming that the economy grows. Malawi spends close to 6 per cent of GNP on education and is unlikely to raise this by more than marginal amounts.

This then identifies the challenge, since it appears that any increases in secondary GERs are likely to need additional financing. The annual amounts needed are large in terms of the Malawi economy and the current education budget. However, they are relatively small in US$ terms. The recurrent cost of the expanded system envisaged in *Chart 5.11* is about US$22 million. This relatively small amount reflects the fact that Malawi is one of the world's poorest economies with very low wage rates. Clearly, different assumptions can be made about the costing of growth in participation which would lead to larger sums being needed on a recurrent basis. Even if these were two or three times greater, they would still fall well within the range of the resources available from the donor community. This would however be a recurrent cost burden.

There would therefore seem no way of avoiding the conclusion that a balance has to be struck between investment in sustaining FPE and some expansion of secondary schooling, that neither are likely without external assistance, and that the key issues at secondary level revolve around whether schooling of acceptable quality can be delivered at public costs that are any less than those currently incurred. The latter might be possible if fee income was increased in government schools as the MCDE system was absorbed.

In conclusion, a number of summary observations can be made from the analysis in this chapter.

First, Malawi has a very under-developed secondary-school system which provides opportunities for education beyond Grade 8 to a very small minority of children. Less than 10 per cent of those reaching secondary entrance level find places in government secondary schools. Historically, those reaching this level are unlikely to represent much more than 30 per cent of those who originally enrolled in Grade 1. As a result, Malawi has a very small proportion of its adults with successfully completed secondary schooling. The gross enrolment rate for the secondary grades in government schools is currently not much more than 7 per cent – one of the lowest enrolment rates in sub-Saharan Africa. If MCDE schools are included, the rate is much higher, but these schools have very high failure rates.

Second, the new government elected in 1994 committed itself to universal and free primary schooling, unlike its predecessor. It allocated resources to make this a reality and has drawn on the assistance of donors for support during the period of transition from a primary gross enrolment rate of 60 per cent to one of more than 120 per cent. This has generated very substantial increases in the numbers of teachers and schools needed and the amount of recurrent finance. Primary schools now account for more than 65 per cent of the recurrent budget for education, leaving little scope for expansion in participation at other levels.

Third, public expenditure per pupil in government secondary schools is a large multiple of that in primary schools. Unit costs at primary appear to have been rising faster than at secondary. Unit costs are still about seven times greater at secondary-school level. This places constraints on the rate at which secondary participation might grow. Though physical resources currently place limits on secondary enrolment growth, the medium-term constraint is undoubtedly the recurrent cost burden it would generate.

Fourth, many government day schools (which are also de facto boarding schools) have high costs which arise largely as a result of subsidized boarding. Clearly, some secondary boarding schools are justified by location and population density. It is not clear that all boarding is justified in this way. If non-essential boarding was abandoned, or charged at the full rate, secondary enrolments might be increased without additional expenditure on government schools through utilizing space released from hostels as teaching space and using the money saved to pay additional teachers.

Fifth, analysis of the average size of secondary schools shows that many are small. Secondary schools with an average of 400-500 pupils are likely to suffer from dis-economies of scale. Larger average school enrolments could be encouraged through increasing the numbers of day students, since school size is partly limited by boarding facilities – increasing the number of day students should be seen as a priority. School size might also be increased through the admission of more girls. Boarding facilities in all types of government schools have typically been provided in a ratio of 2:1, favouring boys. This should be revised to provide equal numbers of places for girls in relation to pupils for whom boarding is essential. More use should be made of double-shift schooling where population densities are high.

Sixth, the private secondary-school system places no direct demands on public expenditure, except that implied by teacher training and curriculum development and any subsidy of examination fees. Arguably, the examination performance of existing private schools, many of which are well established, has been comparable with that of public schools. However, new private schools are growing very rapidly. Without effective controls on recognition and standards, commercially motivated private schooling may not maintain the same standards that have existed in private institutions. There are signs that pupils are being taught in very large groups, with inadequate physical facilities in some new schools. There appears little or no capacity to regulate the growth of private schools such that they conform to minimum standards of physical provision, safety, hygiene and teaching quality.

Seventh, the Malawi College of Distance Education system is extensive, and relatively cheap, but it is also appears to be of poor quality. The MCDE enrols large numbers of post-primary students at costs which are considerably lower than normal secondary schools. They are however greater than primary costs per pupil, despite utilizing primary teachers at much higher pupil/teacher ratios. This arises predominantly as a result of expenditure on printed 'sets'. The cost of providing materials within this system is high and appears to be considerably greater than the cost per pupil for the MCDE that arises from teachers' salary costs. If these 'sets' are fully delivered at currently estimated prices, MCDE unit costs might approach the bottom range of those for ordinary secondary schools which do not provide subsidized materials. It appears that often a sufficient number of 'sets' is neither produced nor delivered.

Conditions for teaching and learning are impoverished in much of the MCDE system, with many pupils being taught without adequate classrooms and access to sufficient learning material. Pass rates at MSCE are very poor. Pass rates at JCE are better, but are not regarded as evidence of high levels of achievement, since pass rates are very high in general and this examination has been discredited by widespread cheating in the past. Examination pass rates at the MSCE suggest that most pupils learn little of what is intended. Expanding enrolments in the MCDE within existing assumptions and working practices would not seem to offer easily defended value for money and might well lead to even lower average pass rates. Neither is it clear that the demand for MCDE places will continue at high levels if pass rates do not improve, given the high private costs of participation.

Eighth, the total secondary school budget accounts for less than the allocation made to higher education. The university was allocated more than twice as much as the entire government and grant-aided secondary school budget in 1995/1996. This was also the case in 1994/1995. This seems paradoxical when secondary enrolment rates are so low.

Ninth, the financial challenge of expanded secondary schooling in Malawi is large in relation to the domestic budget, but modest in terms of donor resources. Some cost-saving measures could reduce the costs per pupil of secondary school places, but the scope for this is limited. So also are the prospects for significant cost recovery and increased contributions from communities and individuals, given the status and likely growth of the Malawi economy. If secondary participation rates are to increase to provide a greater supply of those with higher levels of completed schooling than primary alone, complementary financial support could make very substantial differences in the rate of progress to this goal. Maintenance of FPE and population-driven growth in the primary cycle will absorb foreseeable increases in the education budget. Considerable increases in participation towards a gross enrolment rate of 40 per cent at this level have a recurrent cost burden, which is large in budgetary terms but small in US$ and comparable to imaginable levels of donor support.

In conclusion, the policy commitment to universalize free primary education in Malawi is well founded. However, it has to be interpreted in relation to needs at other educational levels. Publicly funded secondary education is available to a very small proportion of the age cohort in Malawi, yet it is from this group that the leaders of the next generation are likely to emerge and that middle-level employees will be recruited. There is a risk that publicly financed secondary schooling will not grow, or will grow but in a very unbalanced manner, if concerted efforts are not made to protect and develop quality secondary schooling. This suggests that achievable targets should be created for the growth of the government secondary-school system, along with realistic estimates of the resources needed to support such balanced growth at a rate which does not compromise quality. The MCDE system does not appear sustainable in its current form, nor would it appear attractive to encourage further expansion of enrolments in this system until questions of quality and learning resources have been addressed. The best options appear to lie in a phased integration of the secondary schools into a single system. To be affordable, opportunities to increase internal efficiency, make economies of scale, and find ways of increasing complementary funding need to be explored. The fee levels in the MCDE system and for private schools suggest that a proportion of the cost of secondary enrolment expansion can be financed from outside the public budget.

## Chapter VI

# Financing secondary education in selected francophone countries of Africa: issues and perspectives

*Françoise Caillods*

Francophone African countries have some of the lowest enrolment rates in secondary education in the world. These low rates are due to low enrolment rates at the primary level and to a selection at the entrance to secondary education, as many governments faced with severe financial restrictions have chosen to control enrolment expansion at the post-primary level. Most countries confirmed the priority granted to primary education in 1990 in the wake of the World Conference on Education for All, and indeed primary enrolment rates, although still low, rose significantly between 1985 and 1997. As the number of pupils enrolled in primary education increases, and the wave of pupils reaches the final grades of primary education, the pressure on secondary schools mounts and becomes more difficult to resist. Several countries are now considering widening access to lower secondary.

The possibility of expanding secondary education, however, has to be considered in a context of rapid demographic growth, relatively high educational costs and limited state financial resources. Whatever additional resources the state will be able to mobilize will not necessarily be available for secondary education, as reaching universal primary education still requires a large proportion of government resources, and a secondary education place costs at least two or three times as much as one in primary education.

This chapter will review the situation of secondary education in five selected countries of francophone Africa: three Sahelian countries (Burkina Faso, Mali, and Senegal), one country from the coast (Côte d'Ivoire) and one from southern Africa (Madagascar), and discuss alternative strategies for its expansion.

The education systems of these countries, greatly influenced by the French one (France being the former colonial power), have similar features and characteristics. They have an examination at the end of six years of primary education, where those who are to continue into the secondary level are selected. Another common characteristic is their relatively high educational unit cost, a feature that explains why they devote a fair proportion of their budget, and of their GNP, to education, but only succeed in enrolling a limited proportion of their school-age population. Côte d'Ivoire, for example, in the early 1990s spent nearly 8 per cent of its GNP and 36 per cent of the government budget to enrol no more than 67 and 22 per cent of the relevant age groups respectively in primary and secondary education. The five countries differ, however, in their level of participation in primary education, in their recent policies with respect to access to lower secondary and in the role of the private sector in secondary school provision.

Data used in this chapter come from secondary sources, i.e. countries' statistical yearbooks, EFA country reports, sector studies undertaken by the IIEP and the World Bank, and education ministries.

*Table 1* gives some background information on the five countries. Most of them are still experiencing very high rates of population growth, although lower than previously; as a result, the dependency ratio, i.e. the proportion of 0-14 year-olds, a proxy for the school-age population, over the working-age population, is very high. This means that providing education to all youngsters from 6 to 14 or 15 years of age (corresponding to the nine years of basic education) will require a substantial effort from the working population and represents a heavy burden on the GNP. Three countries (Burkina Faso, Mali and Madagascar) have very low GNP per capita, a low rate of urbanization (less than 27 per cent of the population live in the urban areas; more than 80 per cent of their active population works in agriculture), and a limited export industry. A high proportion of the population still lives below the poverty line in all countries (from 42 per cent in Côte d'Ivoire to 56 per cent in Burkina Faso). Education should help in modernizing these countries' economies and fighting poverty. At the same time however, the fiscal base on which public funds are drawn is very much restricted. In fact most government resources are drawn from indirect taxes and import and export taxes.

All five countries suffered from a serious economic crisis in the 1980s and throughout the mid-1990s, which resulted in a steep fall in their GNP per capita over nearly two decades, as well as in government revenues, leading subsequently to a budgetary crisis. Governments had recourse to structural adjustment programmes negotiated with the IMF, which were intended to restore the conditions for economic growth. Due to these adjustment programmes, the proportion of GNP spent on education seriously declined in Mali, Madagascar, Senegal and Côte d'Ivoire. After the devaluation of the CFA in 1994, which boosted their exports, and the new economic policy put in place, the five countries started enjoying faster economic growth. This has opened real prospects for mobilizing higher resources for education.

Table 6.1 Background information on the five countries

| | GNP per capita US$ 1997 | Growth p.a. GNP per capita US$ 1990-97 | GNP per capita $PPP 1997 | Population growth 1990-97 | Dependency ratio 0-14 | Population below poverty line (%) | Education budget in GNP (%) 1990 | Education budget in GNP (%) 1996 |
|---|---|---|---|---|---|---|---|---|
| Burkina Faso | 250 | 0.8 | 1000 | 2.5 | 95 | 56 | 3.6 | 3.4 |
| Mali | 260 | 0.3 | 720 | 2.8 | 95 | 55 | 3.1 | 2.5 |
| Senegal | 540 | 0.0 | 1341 | 2.7 | 86 | 45 | 4.1 | 3.7 |
| Madagascar | 250 | -1.6 | 900 | 2.9 | 84 | 51 | 3.0 | 2.0 |
| Côte d'Ivoire | 710 | 0.9 | 1690 | 2.7 | 84 | 42 | 7.7 | 5.0 |

*Source: World Education Report*, 2000; World Bank, 2001.

## Characteristics and development of secondary education in the various countries

In all countries but Mali, primary education is of six years' duration (five years in Madagascar), followed by four years of lower-secondary education and three years' upper secondary. In Mali lower-secondary education is shorter (three years) and constitutes the second cycle of the nine-year basic education ('Ecole fondamentale'). All countries offer technical and vocational education at upper-secondary level: technical education prepares youngsters to enter higher technical education while vocational education prepares them for entering the world of work. In Burkina Faso, vocational education exists at the lower-secondary level as well.

Côte d'Ivoire is the country that enjoys the highest gross enrolment rates at secondary level: 23 per cent for both cycles on average in 1995 and 1997. It is followed by Senegal and Madagascar (16 per cent), Mali (13 per cent) and Burkina Faso (11 per cent) (see *Table* 2). The higher rate of development of secondary education in Côte d'Ivoire is justified by the somewhat higher level of economic development of the country and by the existence of a more diversified labour market. Nevertheless students' participation at that level is limited. Given the high level of repetition and drop-out, the net enrolment rates are much lower: they were estimated on the basis of household surveys at 5 per cent in Mali, 15 per cent in Madagascar, and 18 per cent in Côte d'Ivoire around 1994/95 (World Bank, 2001).

Where it has been possible, an analysis by cycle has shown that the enrolment rates at lower secondary are nearly double those of upper secondary. This is a result of the selection that takes place throughout lower secondary and also by means of the examination at the end of lower secondary: only a small proportion of students continue to upper secondary. Another substantial selection takes place at the final secondary examination. In view of the low participation rate at primary, and the selection that takes place continuously afterwards, the proportion of an age cohort that leaves school with at least a secondary school diploma is well below 10 per cent in all countries, even in Côte d'Ivoire. In the present globalized world where, in order to be competitive, countries have to have a fairly well-educated labour force to attract foreign investments, such low participation, leading to a low educational level of the workforce, may very well jeopardize these countries' long-term development prospects.

Table 6.2. Gross enrolment rate in primary and secondary education

| | Year | Primary % | Lower secondary % | Upper secondary % |
|---|---|---|---|---|
| Burkina Faso | | | (lower and upper) | |
| | 90/91 | 31 | 7 | |
| | 94/95 | 35 | 8 | |
| | 96/97 | 38 | 10.6 | |
| | 97/98 | 41 | 11.0 | |
| | 98/99 | n/a | 11.1 | |
| Senegal | 90/91 | 59 | 21 | 10 |
| | 95/96 | 57 | 22 | 10 |
| | 96/97 | 59 | 21 | 9 |
| | 98/99 | 66 | 22 | 9 |
| Mali | 90/91 | 26 | 11 | 4.1 |
| | 94/95 | 39 | 13.6 | 7.4 |
| | 95/96 | 42* | 14.5 | 7.6 |
| | 97/98 | 50* | 17.9 | 8.8 |
| Côte d'Ivoire | 91/92 | 71 | 30 | 13 |
| | 94/95 | 71 | 28 | 14 |
| | 95/96 | 71 | 31 | 14 |
| | 97/98 | 72 | 27 | 13 |
| Madagascar | | | (lower and upper) | |
| | 90/91 | 104 | 18.0 | |
| | 94/95 | 89 | 15.5 | |
| | 95/96 | 94 | 16.0 | |
| | 96/97 | 97 | 16.0 | |
| | 97/98 | 104 | n/a | |

*Including Medersas.[1]
*Source:* Countries' statistical yearbooks.

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[1] Medersas are religious schools, which follow the normal curriculum of state schools with additional religious courses. Teaching is done in Arabic.

The reasons for such low enrolment rates are to be found first and foremost in the low coverage of primary education, due to both low admission rates and low levels of retention at that level. Madagascar is the only country that has nearly achieved universal access to primary education (104 per cent gross enrolment rate), but of those who start primary education, no more than a third reach the last grade of primary. In Côte d'Ivoire, Senegal and Burkina Faso a relatively larger proportion of those who enter primary education finish the cycle (between 55 and 60 per cent reach the final grade of primary), but the proportion of the relevant age group that enters primary is still far from 100 per cent; hence the gross enrolment rates at primary level were still low in 1997, respectively 72, 59 and 41 per cent. Mali succeeded in substantially increasing its admission rates in primary education in recent years (from 30 per cent in 1991/92 to 51 per cent in 1997/98) but the retention rate remaining low, the gross enrolment rate was still not higher than 50 per cent in 1997/98. Thus, due to low admission rates and high drop-out at primary, the number of potential candidates for entry in secondary education is relatively limited in all countries: the number of pupils reaching the last year of primary education as a proportion of the relevant age group, ranged from 20 per cent in Burkina Faso, 27 per cent in Madagascar, 29 per cent in Mali, 33 per cent in Côte d'Ivoire and 37 per cent in Senegal around 1997.[2]

The second reason for the low enrolment rate is the policy adopted by countries concerning flow regulation. In spite of the enrolment increase at primary level, the secondary enrolment rate in almost all of the countries under consideration remained remarkably stable between 1990 and 1997. Ministries of Education controlled the number of people admitted into state schools at both lower- and upper-secondary level as a function of available school places. The number of government secondary schools did increase, partly as a policy to reduce regional disparities, and partly to respond to the mounting pressure for secondary school places as more and more pupils reached the end of primary education, but the number of school places has barely kept pace with the increase in primary-school leavers. An exception is Mali, which has committed itself to eventually offering a nine-year fundamental education, and where enrolment rates have increased at lower secondary (the second cycle of fundamental education) and upper secondary in the most recent years.

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[2] *Source:* for Madagascar, World Bank 2000; for other countries, author's calculations.

The third reason is linked to the high cost of secondary school places, as will be discussed below.

## Flow regulation

### *Access to state secondary education*

Only those who have passed their end-of-primary-education certificate can, in principle, enter a secondary school. To enter a state secondary school pupils may have to fulfil a certain number of additional conditions. For example, in Senegal, only those who have the best examination scores and are below 15 years of age can be admitted to a state secondary school. In Burkina Faso only those who have a score above a certain threshold are allowed to continue at secondary level. Those with the highest marks are admitted to a state secondary school, and another group with slightly lower marks are admitted into a private school with some government support. In Côte d'Ivoire, the primary school certificate is required to enter state schools and the cut-off point, i.e. what is required to enter secondary education, varies somewhat from region to region. Some private schools on the other hand accept pupils without the certificate.

In general the minimum score to enter a state secondary school is determined as a function of the number of places available in these schools. The proportion of primary-school leavers selected to enter state lower-secondary schools was equal to 13.2 per cent in Burkina Faso, 22 per cent in Senegal and 31.8 per cent in Côte d'Ivoire in 1996. In Mali, the proportion admitted to Grade 7 was higher (54 per cent) given the country's policy. Both Côte d'Ivoire and Senegal are now considering also opening access to lower secondary. Consequently Côte d'Ivoire reformed its end-of-primary-education examination and the proportion of the pupils given passes increased to 50 per cent in 1997/98.

The overall transition rates are slightly higher than the figure mentioned above since an increasing number of pupils enter private schools. Transition rates equalled 27 per cent in Burkina Faso, 30 per cent in Senegal, 33 per cent in Côte d'Ivoire and 56 per cent in Mali in 1997. Madagascar is the only country where the transition rate from primary to secondary education actually declined, from 42.6 per cent in 1990/91 to 39.5 per cent in 1994/95. This decline led to a fall in lower-secondary school intakes and a stagnation in enrolments as from 1989/90, primarily in state schools. This trend is probably to be related to a decline in school demand, itself resulting from a deterioration in the quality of schooling and in families' living conditions, which forces many youngsters to work.

Access to upper-secondary education is also controlled. To enter the second cycle of secondary education it is necessary to have passed the BEPC or DFEM or DEF (certificate of end of lower-secondary school studies). Again, minimum grade and age conditions can be added to gain access to different streams at upper-secondary level. Access to the science streams is generally more restricted and not all upper-secondary schools offer the stream specialized in mathematics and physical sciences. The selection is more or less stringent according to the country; it is particularly severe in Burkina Faso and Madagascar. In 1995/96, the proportion entering upper-secondary school varied from 21 per cent in Burkina Faso and 27 per cent in Madagascar, to 46.6 per cent in Côte d'Ivoire and 55 per cent in Senegal and Mali. Again in Madagascar, the transition rates from lower to upper secondary declined from 34.1 per cent in 1989/90 to 27 per cent in 1995/96 for reasons similar to those given above for lower-secondary education, and this led to a decline in upper-secondary school enrolments.

### *Internal efficiency*

Many of those who fail the examination at the end of a cycle or who fail to find a place in a state school choose to repeat so as to have a second chance. The rate of repetition in the last year of every cycle (primary education, lower and upper secondary) is thus very high – between 30 and 40 per cent – in almost all countries, as can be seen in *Table 3*. A number of countries have started to limit repetition in state schools: a slight decline in the repetition rate is thus apparent in the last grade of primary in Burkina Faso and Senegal and in Grade 9 in Mali. At secondary level, the repetition rates are much lower in Côte d'Ivoire and in Senegal than in other countries. Repetition however remains far too high and unnecessarily overburdens enrolments and the costs of primary and secondary education. Revising the procedures and content of the end-of-primary-school examination, and opening access to secondary education should contribute to reducing this phenomenon. The case of Mali, where access to Grade 7 is officially free of any selection and where repetition in Grade 6 remains high, shows however that the implementation of such measures is slow.

A high rate of repetition may of course be due to low levels of learning achievements as a result of the insufficient quality of education and absenteeism of students. Indeed, repetition rates are high throughout primary and secondary education, and not only for the last grade of each cycle. While there is probably a problem of low quality, recent research carried out at the primary-education level shows, however, that decisions regarding repetition can be fairly arbitrary, having more to do with the existence of a culture of repetition than with an independent assessment of pupils' achievements (CONFEMEN, 1999; Eisemon, 1997). If this is the case it is not easy to interpret the differences observed in the repetition rates between public and private schools, even more so as the repetition rate varies from one stream to another.[3] In any case, repetition rates can be quite high in private schools as well, and they are not always lower than in state schools.

Table 6.3 Rates of repetition in the last year of primary and secondary education (%)

| | | End of primary % | End of lower secondary % | | End of upper secondary % | |
|---|---|---|---|---|---|---|
| | | | public | private | public | private |
| **Burkina Faso** | 1993/1994 | 44 | 36.7 | 36.3* | 33.6 | 34.6* |
| | 1998/1999 | 35 | 43.5 | 44.0* | 42.9 | 46.1* |
| **Mali** | 1990/1991 | 34.8 | 49.6 | n/a | n/a | |
| | 1994/1995 | 34.4 | 41.3 | n/a | n/a | |
| | 1996/1997 | 37.4 | 35.0 | n/a | n/a | |
| **Senegal** | 1995 | 30.2 | n/a | n/a | n/a | n/a |
| | 1997 | 28.7 | 24.4 | n/a | 27.7 | n/a |
| | 1999 | 28.6 | n/a | n/a | n/a | n/a |
| **Madagascar** | 1992 | 32 | 37 | 28 | 41 | 31 |
| | 1998 | 30 | 37 | 27 | 41 | 33 |
| **Côte d'Ivoire** | 1995/1996 | 40 | 16.2 | 44.3 | 16.5/34.6** | 13.9/70.8** |
| | 1997/1998 | 43 | 14.4 | 40.3 | 31.9 | 48.8 |

*Proportion of repeaters.
**According to the stream.
*Source:* Countries' statistical yearbooks.

Due to these repetition and drop-out rates, it takes an unduly high number of pupil-years to produce a graduate. In Senegal, of those who enter the first year of secondary education (*6*$^{e}$), 83.3 per cent reach the final grade of lower secondary, 47.2 per cent enter upper secondary, and 34.8 per cent reach the last year of secondary *(terminale)*. In the end, only 19 per cent of those who entered succeeded in obtaining a baccalaureate several years later. It thus takes 8.6 pupil-years to produce a lower-secondary graduate, that is to say twice as many as is theoretically necessary; and a total of 28 pupil-years to produce one baccalaureate holder for a theoretical duration of seven years of secondary education (Faye, 1998). In Côte d'Ivoire, it takes 15.5 pupil-years to produce a secondary graduate, twice as many as necessary. In Burkina Faso, it takes 9.5 years to produce a lower-secondary graduate and an additional 5.8 years to produce an upper-secondary graduate.

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[3] It is lower in the highly selective streams such as the mathematics and physics stream, which is not always offered in private schools.

## Inequalities in secondary education provision

Another characteristic of secondary education in the five countries concerned, is the existence of disparities of access between regions, urban and rural areas, among different social groups and between genders.

Regional disparities in access to the secondary level reflect those that exist at the primary level but are even more pronounced. In Senegal, 57 per cent of all lower-secondary pupils are enrolled in schools located in only two regions: Dakar and Thies. In Burkina Faso the secondary enrolment rate varies a great deal from one province to another: from a maximum of 33.8 per cent in the province of Kadiogo to a low 3 per cent in some other provinces in the east. The government is trying to correct these inequalities by creating a lower-secondary school in every 'département' but this is not yet the case. Moreover, some of the new schools located in low-density areas remain very much underutilized.

Schools are generally located in urban areas and enrol students from the neighbouring rural areas. For pupils in the neighbouring rural areas, the distances to be covered can be such that parents prefer not to send their children, their daughters in particular. In the absence of boarding schools, pupils are expected to find a tutor in the neighbouring city and this is not always possible, nor can all parents afford it. This leads to large disparities between regions, as mentioned above, but also between urban and rural areas. Related to these are the disparities between social groups. Children of civil servants and tradesman are generally over-represented among the students while children of farmers, artisans and self-employed workers are under-represented. Data available for Burkina Faso for example indicate that children of farmers do not represent more than 58 per cent of all students in state secondary schools and 30.2 per cent in private secondary schools, although farmers and their families constitute more than 80 per cent of the population (MESSRS, Burkina Faso, 1999)

Gender disparities are also considerable. Girls are seriously under-represented in the secondary schools of all the countries concerned but Madagascar (see *Table 4*). They constitute less than 40 per cent of enrolment at lower secondary in Burkina Faso, Senegal and Côte d'Ivoire and this proportion decreases when one moves from the lower to upper-secondary levels. Girls drop out in larger numbers. Three countries have succeeded in improving their gender ratio at upper-secondary level (Madagascar, Mali and Senegal) but the objective fixed by the World Education Forum in Dakar to reach parity of enrolment between boys and girls by 2005 is still far from being achieved.

Some of these disparities are linked to the characteristics of school supply (lack of school places, the fact that schools are located in the biggest urban centres, large distances to be covered in rural areas, insufficient quality of education, and lack of relevance of content) but they are also related to demand. This leads to the question: is there a demand for secondary education?

Table 6.4 Proportion of female students in secondary education (1997/1999)

| | Lower secondary | Upper secondary |
|---|---|---|
| Burkina Faso | 38.3 | 25.8 |
| Mali | 43.0 | 30.4 |
| Madagascar | 50.0 | 49.0 |
| Côte d'Ivoire | 35.1 | 30.5 |
| Senegal | 39.7 | 36.8 |

*Source:* Countries' statistical yearbooks.

## Social demand for secondary education

The social demand for secondary schooling is fairly strong but it is essentially an urban phenomenon. As the number of people with access to primary schooling increased, the primary-school certificate completely lost its value on the labour market. Having a secondary-school certificate is not a guarantee of gaining access to a public-sector post either, as it was in the past, but not having such a certificate is a guarantee never to have access to such posts. Thus families do their utmost to obtain a place in a secondary school, particularly in a state secondary school. There are several indications of this strong demand.

The high rates of repetition at the end of every cycle, discussed above, constitute the first indicator of this strong social demand. The strategies developed by families to 'bypass' the selection examination is another indicator of the strong demand.

In Burkina Faso, a parallel system of admission to government lower-secondary schools has developed. Pupils and families whose children have not passed the entrance examination may apply directly to the heads of secondary schools or to the school committee. Children thus admitted have to pay a fee (whereas tuition is free for those who have passed the entrance examination). In 1993/94, the number of students actually entering the first grade of secondary education was double the figure of those officially admitted through having passed the examination. A similar parallel system existed in Côte d'Ivoire until 1993. It was then stopped, as it led to overcrowding in the classrooms (nearly twice as many students were enrolled per class as the Ministry had planned) and to a deterioration of educational quality. A limited number of admissions nevertheless continues to take place at the school level outside those admitted through the examination. In Senegal, families who can afford to do so enrol their children in a private secondary school for one or two years and then transfer them to a state school in the 2nd or 3rd year, there again bypassing the entrance examination. This practice is quite developed, although not officially allowed.

Another indication of the strong demand for secondary education is the size of the private sector. Schools are considered private if they are not directly run by government, even if they receive public grants. *Table 5*, which shows the proportion of pupils enrolled in private schools at the primary, lower and upper-secondary levels, illustrates a variety of approaches, policy orientations and traditions regarding private education. The share of the private sector was relatively limited at the primary level in all countries except Madagascar, but it has been slowly growing in recent years. It is much more important at secondary level, particularly at lower secondary where it has been growing since the beginning of the 1990s. Presently the private sector enrols roughly one pupil out of three in Senegal, Burkina Faso and Côte d'Ivoire. Madagascar, where the private sector enrols nearly half the student body at the secondary level, is quite remarkable in this respect. In some countries it enrols a higher proportion of pupils at lower secondary than at upper secondary (Burkina Faso and Senegal), but the reverse is true in Madagascar and Mali and, recently, Côte d'Ivoire.

Private secondary schooling developed in most countries primarily (although not exclusively) as a result of the governments' incapacity to offer sufficient places in state schools. Its size depends on the regulation that exists, the financial support that the government may provide and on the parents' capacity to pay fees. The latter is directly proportional to the family's income, the number of children and whether or not they are already contributing to the cost of primary schooling. Private enrolment has significantly increased in the past five years in Senegal, Côte d'Ivoire and Mali, thanks to the new policy adopted in the mid-1990s vis-à-vis the private sector (simplifying the procedures for opening a school, granting tax exemptions, subsidizing some of the schools, and deregulating fees for non-government-aided schools) and to demand from the urban middle class. In Burkina Faso, on the other hand, the share of the private sector in secondary schools seems to be declining from its relatively high level in the 1980s, indicating a possible ceiling to its expansion and a limit to what families are able to pay at a time of economic crisis.

The case of Madagascar illustrates another dimension of the dynamics of the private sector. It developed there essentially because of parents' dissatisfaction with the quality of public schools. As mentioned earlier, the enrolment at lower-secondary level stagnated in state schools, but the number of pupils in private schools increased. At the upper-secondary level enrolment declined in both private and public schools, but faster in public than in private schools. The demand for secondary schooling of a higher quality exists, and is sufficiently high to allow a transfer from public to private schools, but the economic crisis and the level of poverty is also limiting how much money families can spend on secondary education. The share of private education may thus have reached a limit as well.

Table 6.5 Share of the private sector in primary and secondary enrolment

| Country | Date | Share in primary enrolment % | Share in lower-secondary enrolment % | Share in upper-secondary enrolment % |
|---|---|---|---|---|
| Burkina Faso | 1983/84 | 8.2 | 56 (1980) | n/a |
| | 1992/93 | 7.1 | 36.3 | 26.9 |
| | 1993/94 | 7.3 | 32.0 | 24.5 |
| | 1998/99 | 11.0 | 31.0 | 24.3 |
| Senegal | 1985 | 8.8 | 32.0 | 17.6 |
| | 1990 | 9.2 | 25.2 | 10.5 |
| | 1995 | 9.8 | 24.9 | 13.2 |
| | 1996 | 10.5 | 25.5 | 16.2 |
| | 1998 | 12.1 | 31.0 | 19.4 |
| | 1999 | 12.5 | 28.7 | 19.2 |
| Mali | 1990/91 | 3.9 | 14.0* | n/a |
| | 1994/95 | 8.3 | 13.9* | n/a |
| | 1995/96 | 8.0 | 13.9 | 23 |
| | 1996/97 | 10.9 | 6.5 | 24 |
| Côte d'Ivoire | 1991/92 | 9.6 | 27.0 | 19.4 |
| | 1994/95 | 12.0 | 34.2 | 35.8 |
| | 1995/96 | 11.9 | 34.8 | 40.5 |
| | 1997/98 | 12.0 | 34.0 | 42.1 |
| | 1998/99 | n/a | 33.7 | 40.4 |
| Madagascar | 1991/92 | 22 | 38 | 44 |
| | 1993/94 | 22 | 43 | 50 |
| | 1994/95 | 22 | 45 | 51 |
| | 1997/98 | 22 | 45 | 49 |

* Medersas included

*Source:* Countries' statistical yearbooks.

Present in all countries is the phenomenon of parents that send their children to a private school because they are dissatisfied with the quality of teaching in government schools. In Senegal, for example, enrolments in state schools declined in 1996 and 1997 while enrolment in private schools increased. Another hint of this phenomenon is given by the fact that many civil servants – teachers included – send their children to private school. In Burkina Faso, for example, while 23 per cent of students in state schools are children of civil servants, this is the case of 56.5 per cent of pupils in private schools. Clearly parents would like to offer a high-quality education to their children. However they cannot always afford it and the private sector is quite uneven in terms of teaching conditions and quality of education. Thus while the first choice of wealthier and informed parents is to place their children in one of a select few private schools, government schools coming as a second choice, the majority of parents would choose to send their children to a state school. Those who cannot have access to such state schools then send their children to a private one, if they can afford the fees. Hence private schools are both the first and the last choice of parents.

For obvious reasons, the demand for secondary schooling is stronger in large urban centres than anywhere else. In Mali, for example, two of the twenty-three private general upper-secondary schools are located in Bamako, the capital, while some state schools located in rural areas operate below capacity (1999/2000). In Côte d'Ivoire, 57 per cent of lower-secondary students and 60 per cent of upper-secondary students attending a private school live in Abidjan, the capital. The percentages rise to 66 per cent and 82 per cent of enrolment if we consider both Abidjan and Bouake. In Senegal, likewise, two-thirds of the students in private schools are enrolled in the city of Dakar. This is further proof of the fact that only middle-class families living in cities and receiving a monetary income can afford to pay the high fees that most private schools request.

Thus if the share of private education continues to increase, this is likely to exacerbate the gap between urban and rural areas, between regions and between social groups. It is not clear however what the effect would be on the gender gap. In fact private schools tend to enrol a higher proportion of girls than state schools. In Senegal, for example, girls represent 47 per cent of the enrolment in private middle schools compared to 36 per cent in public schools. In Côte d'Ivoire, there are 40 per cent girls in private secondary schools (41 per cent at lower secondary and 40 per cent at upper-secondary level) compared to respectively 32.1 and 24.31 per cent in state schools. This phenomenon is due to the fact that private schools are located in big urban centres, while state schools are all over the country. One should not conclude that opening more private schools will necessarily increase the proportion of girls, but opening more school places in big cities, whether in public or private schools, will. The challenge however is to enrol more girls in rural areas.

Parents are concerned by the type of schools their children attend, not only in terms of public/private but also in terms of the programme they offer. In this respect the demand for technical and vocational education seems to be quite high in several of the countries concerned, far exceeding the capacity of existing government schools. In a context where large numbers of secondary and higher education graduates are unemployed, the chances of being employed are slightly higher if the student has a vocational certificate or diploma. Hence families want to send their children to a vocational school in the hope that they will learn a trade and acquire specific skills; some of them even keeping their chances of continuing at higher levels of education (in technical schools). Vocational and technical streams, which exist in parallel to general education, enrol only a small proportion of all secondary students however: 6.7 per cent in Senegal, 6.2 per cent in Côte d'Ivoire, 6.5 per cent at lower-secondary level and 12.5 per cent at upper secondary in Burkina Faso. Places in government schools being limited, private courses and schools have developed quickly. In Côte d'Ivoire, enrolment in private technical and vocational schools increased at a yearly rate of 8 per cent between 1991 and 1995. In Mali, 25 per cent of lower secondary school-leavers enter a vocational course, many of which are run by a private institution. The quality of education in both public and private institutions leaves much to be desired however.

## Teaching conditions and quality of education

The teaching conditions vary quite a lot from one country to another and from one type of school to another. Nevertheless the strategy followed by most governments has been to favour a high number of pupils per class – even if pupil/teacher ratios are much lower – and a relatively high proportion of trained teachers. Teaching conditions are, however, often quite unsatisfactory.

All countries have an extremely high number of pupils per class in their government schools (see *Table 6*). Although the admission rates at the different secondary levels are in principle fixed on the basis of existing school places, pressure to increase access and the parallel system of school entry have contributed to increasing the number of pupils per class to very high levels in these schools. In Côte d'Ivoire, there were on average 73 pupils per class in lower secondary and 63.4 in upper secondary in 1993/94. This number fell to 56.5 and 45.9 respectively in 1995/96 after parallel recruitment had been eliminated and the ceiling of 66 pupils per class had been enforced. In Burkina Faso the number of pupils per class was on average equal to 69 in state lower-secondary schools and 51 in state upper-secondary schools (1998). The corresponding numbers in Senegal were 51 and 42 (1997/98). In Mali, the number of pupils per class in public lower-secondary schools reached 56 on average (but interestingly enough 70 in schools which offer both primary and lower secondary). These figures are averages and the number of students per class can vary considerably from grade to grade, as from school to school. It is obviously much higher in the first and last grade of a cycle than in the others. It can also reach 100 in some urban schools.

Unless the teachers are exceptionally good and skilful, and there is no reason to believe that they are, not much learning can take place in such large classes. Certainly not much homework is given nor individually marked and corrected, a factor that has been proven to have a high correlation with learners' achievements.

Table 6.6 Number of pupils per class in public and private schools, 1998

| | Lower secondary | | | Upper secondary | | |
|---|---|---|---|---|---|---|
| State | Private | Total | State | Private | Total | |
| Cote d'Ivoire | 58.3 | 47.4 | 54.0 | 45.0 | 36.6 | 41.0 |
| Burkina Faso | 69 | 54 | 64 | 51 | 38 | 47 |
| Mali | 56 | 44 | | 47.3 | n/a | n/a |
| Senegal | 51 | 40.8 | 48.5 | 42 | 29.3 | 35.1 |

*Source:* Countries' statistical yearbooks.

The educational level of teachers is not very high, not much higher than the level they are teaching at. In Burkina Faso 54 per cent only of the teachers are qualified; in Madagascar 70 per cent had completed upper secondary and 14 per cent had only completed lower secondary (World Bank, 2000). But in the other countries the majority of teachers in public schools are trained permanent teachers (88 per cent and 72 per cent in Mali in 1998 respectively for lower and upper secondary; 92.6 per cent in Senegal). In view of the financial restrictions and the limitation on teachers' recruitment following the structural adjustment programme, a growing number of temporary and contractual teachers are now being employed in these two countries. In Mali they now represent 28 per cent of all teachers in upper-secondary schools. Senegal is the only country that has made it an official policy to appoint most new teachers as contract teachers. There is no such official policy in Burkina Faso but in practice contract teachers are recruited by the headteachers if they do not have enough teachers to cover all subjects. In Côte d'Ivoire only municipal schools are supposed to employ them. Such teachers are paid much less than permanent teachers, although they may have the necessary educational level (university degree). Some of them may have had some training but most of them have not.

A serious problem is the lack of teachers in certain disciplines: teachers in mathematics, science and philosophy are often in short supply. An overall shortage combined with inefficient teacher deployment procedures – whereby more teachers are available in the capital city than in the rural areas – has resulted in several schools not having enough, or indeed any mathematics and science teachers. Thus these subjects are either not taught, or taught by a non-subject specialist (service teachers).

Teachers do not benefit from enough support from supervisors or, within the school, from headteachers or senior teachers. In Burkina Faso there was one inspector on average for 179 teachers in 1998; one for 390 teachers in French, and one for 636 in history/geography. Their responsibility is limited to visiting teacher trainees and confirming their appointments. In Senegal there are no inspectors who are assigned the task of visiting teachers and advising them on their teaching practices. Headteachers are often appointed more on the basis of their length of service rather than their management skills. They cannot offer much support to teachers nor do they animate teaching teams.

Teachers' teaching conditions have also deteriorated drastically in Senegal, Burkina Faso and Mali. There are not enough textbooks and teaching materials, either for the pupils or for the teachers (one book per three or four pupils on average in Senegal, less in Burkina Faso where the state is no longer providing the books). Books are often too expensive for the children to buy and libraries are reduced to a minimum; there are also no photocopying facilities, which could have compensated for the lack of materials.

Class disruption due to teacher strikes and/or absenteeism, as well as students' absenteeism, is responsible for the school instructional year being much shorter than it is meant to be. This contributes to lowering the quality of education.

The situation in terms of equipment is also below standard in most schools. Tables and benches are available in insufficient number. Not all schools have laboratories: where there are some they are often empty and the teachers do not have the necessary equipment and consumables to do demonstrations, not to mention practicals. In Mali 6 out of the 33 state upper-secondary schools do not have electricity and another 6 do not have water. The situation is generally better in Côte d'Ivoire, where the schools are relatively well equipped and furnished.

Technical schools, which exist at lower and upper secondary, do not have up-to-date equipment or raw materials. The absence of fences and caretakers is also responsible for the disappearance of much equipment and material from the schools.

The situation regarding buildings is not much better. As the pressure of demand was being felt and insufficient numbers of schools were being created, existing schools were asked to accommodate more pupils. Hence, the number of pupils per classroom has become very high. The size of state schools has increased, the length of the school day has been extended or double-shift introduced. The average school size of a lower-secondary school is 676 pupils in Senegal, 1,267 for an upper-secondary school. This is an average: in Dakar, several upper-secondary schools accommodate up to 5,000 youngsters. In Côte d'Ivoire, the average size of a secondary school was 1,950 pupils in 1992/93. Such a size allows for economies of scale but these schools may have real management problems and may not be conducive to proper learning. Rural areas of Burkina Faso, Madagascar and Mali have smaller-sized schools at lower-secondary levels, thanks to their governments' respective policies of enforcing nine years of basic education (Mali), and of situating a lower-secondary school in every department (Burkina Faso). Small schools are more likely to facilitate enrolment of rural pupils and of girls and they avoid having to organize boarding facilities. Their disadvantage is that they are costly to run if there are not enough pupils to ensure a good utilization rate of specialized teachers and facilities. But there are often few, if any, specialized facilities and teachers in such schools. Several government schools in the rural areas of Mali, Côte d'Ivoire and Burkina Faso are actually not operating at full capacity, either because their location was badly planned, their enrolment was overestimated, or because rural families cannot afford the cost of schooling.

Last, but not least, a serious problem is that the buildings are not properly maintained. This is due to government budget limitations, but also to the lack of other partners willing to step in to contribute to the financing. There is still a fairly strong belief that investment in secondary-school buildings is the responsibility of the state. This may be due to:

1. historical reasons: i.e. the state has always financed the construction of secondary schools, often with the help of aid agencies;
2. practical reasons: secondary schools have often been constructed according to high construction standards and cannot be easily maintained by members of the community or other decentralized agencies;
3. structural reasons: village communities have rarely developed a feeling of ownership towards a secondary school that serves not one but several communities.

The new decentralized bodies, which are created at regional or municipal level in the framework of the decentralization policy, are expected to play a role in school construction and maintenance, but they need to receive adequate resources from the central government to do so (local taxes are too limited). Several municipalities and regional authorities have started building schools or maintaining them in Senegal, Côte d'Ivoire and Burkina Faso. It remains to be seen whether this will become a significant trend and whether decentralization will allow to devote more funds to education.

The situation in private schools is not much better than that in state schools, rather the contrary. In fact, the private sector is quite heterogeneous. It comprises religious schools – Islamic (Medersas), Catholic and Protestant – and a large number of non-religious, profit-making institutions, run by a variety of private providers, amongst whom retired teachers. The quality and the teaching conditions differ a lot from one type of private secondary school to another. Catholic and Protestant schools are recognized as providing better-quality education in several countries: pupil/teacher ratios are lower, schools are smaller, equipment and teaching materials are available in greater quantity – more is spent on non-salary costs -, the teaching-learning process (homework etc.) is better controlled and the discipline better enforced. This contributes towards making them popular with urban parents, who can afford to pay fees – civil servants and teachers in particular. Many of them receive subsidies from the government, as we shall see below. The profit-making institutions are more heterogeneous: they include some very good schools – which charge high fees – as well as some very poor ones.

In Senegal, Mali and Burkina Faso, Catholic schools employ a majority of trained permanent teachers with the status of private school teachers; profit-making (non-Catholic private) schools, on the other hand, employ large numbers of qualified but untrained teachers (i.e. university graduates), who do not have a permanent status and whom they pay less. They also make extensive use of state teachers who complement their salary by teaching a few periods in their schools.

One of the consequences of the poor teaching conditions are the high repetition rates as discussed above, and the low pass rates in the examinations organized at the end of each secondary cycle. Pass rates are low in the lower-secondary examination, lower in Burkina Faso and Côte d'Ivoire than in Mali and Senegal, but they have increased everywhere. These rates give an indication of the unsatisfactory level of students' learning and achievements but they also reflect government policies in terms of flow regulation: this is one of the reasons why the pass rates are higher in Mali (see *Table 7*).

The percentage of pupils who pass the end-of-secondary examination (baccalaureate) is particularly low in Burkina Faso and in Côte d'Ivoire, although it did increase in the latter during the last year; in Senegal it is slightly higher. It depends on what is considered a satisfactory level of achievement in each country. The baccalaureate, however, not only certifies what students have learned at secondary, it also authorizes them to enter a university: it is therefore an important policy variable for the development of higher education.

Pass rates are rarely published separately for private and public schools. This information is available in Burkina Faso: it shows that private schools have on average a lower pass rate than state schools. This is the proof that although some private schools are good schools, in Burkina Faso at least the majority are not as good as state schools.

Table 6.7 Pass rate in the lower-secondary and upper-secondary examinations

| | | BEPC/BFEM/DEF | | Baccalaureate | | |
|---|---|---|---|---|---|---|
| | | Total | Private | Total | Public | Private |
| Burkina Faso | 96 | 25.8 | n/a | 43.4 | 44.9 | 40.2 |
| | 98 | 37.5 | n/a | 25.0 | 29.9 | 25.6 |
| Madagascar | 98 | 26.1 | n/a | 29.6 | n/a | n/a |
| Côte d'Ivoire | 94 | 7.9 | n/a | 13.2 | n/a | n/a |
| | 96 | 24.8 | n/a | 30.1 | n/a | n/a |
| | 98 | 35.6 | n/a | 35.9 | n/a | n/a |
| Senegal | 98 | 55.1 | n/a | 45.5 | n/a | n/a |
| | 99 | 55.6 | n/a | 44.3 | n/a | n/a |
| Mali | 98 | 66.9 | n/a | 39.3 | n/a | n/a |

*Source:* Countries' statistical yearbooks.

## Cost of secondary education

Unit costs of education relative to the GNP per capita are high in the francophone countries. As mentioned earlier, this is reflected in the relatively high proportion of GNP devoted to education, in spite of still modest enrolment rates at all levels (*Table 2*). The costs of secondary education in particular are high. *Table 8* indicates the unit costs of secondary education over those of primary education in the countries studied. It costs twice as much to enrol a student at lower secondary compared to primary in Senegal and Mali, nearly four times as much in Madagascar. The cost differentials between primary and upper secondary are even more substantial: a lycée student costs five times as much as a primary student in Senegal and eight times as much in Mali and Madagascar. These costs will make expansion difficult to achieve.

Table 6.8 The cost of secondary education over that of primary education

| | | Lower secondary/ Primary | | Upper secondary/ Primary | |
|---|---|---|---|---|---|
| | | Public | Private | Public | Private |
| Madagascar | 1993 | 4.4 | 1.6 | 6.6 | 2.9 |
| | 1998 | 3.7 | n/a | 8.1 | n/a |
| Côte d'Ivoire | 1980 | 3.7 | n/a | n/a | n/a |
| | 1993 | 2.2 | n/a | n/a | n/a |
| | 1995 | 2.9* | n/a | 2.9* | n/a |
| Senegal | 1995 | 1.8 | n/a | 5.2 | n/a |
| Mali | 1994 | 1.7 | 1.77/3.58** | 7.08 | n/a |
| | 1996 | 2.5 | n/a | 8.17 | n/a |

* Lower- and upper-secondary schools together.

** Catholic/non-religious schools.

*Source:* Countries' statistical yearbooks. For Madagascar: Péano and Rahaririaka (1997); World Bank, 2000.

The reasons for such high costs relate essentially to high salary costs per pupil. These in turn pertain to:

- *The low rate of utilization of teachers*: the pupil/class ratios may be high, but not the pupil/teacher ratios (*Table* 9). This is due to the relatively modest effective teaching load. A lower-secondary school teacher is generally expected to teach 22 periods and a qualified upper-secondary school teacher 18 periods: a number of periods far below what is foreseen for pupils by the curriculum. In Senegal, for example, secondary-school teachers are expected to teach 18 periods while the curriculum stipulates that students at lower secondary should have between 29 and 34 periods of teaching a week. Thus to cover the curriculum it is necessary to have at least 1.6 to 1.9 (full-time equivalent) teachers per class. But not all teachers teach a full load. In Madagascar the average workload for a teacher was 15 hours a week at lower-secondary level and 13 hours a week at upper secondary. In Mali, secondary teachers teach 18 hours on average and not the 22 they are meant to teach. Consequently it is necessary to have on average 2 teachers per class in lower-secondary and 2.6 in upper-secondary state schools in Senegal, 1.7 in those of Côte d'Ivoire (where the number of teaching periods has been reduced at lower secondary) and 1.6 in Burkina Faso. At upper-secondary level, the diversification of streams and options contributes to the low rate of utilization of teachers.

Table 6.9 Pupil/teacher ratios in primary and secondary education, 1998

| | Primary | Secondary |
|---|---|---|
| Burkina Faso | 46.5 | 28.2 |
| Madagascar | 53.3 | 16.4 |
| Senegal | 50.0 | 19.8 |
| Côte d'Ivoire | 41.3 | 30.9 |

*Source*: Countries' statistical yearbooks.

- *The high level of teacher salaries at the secondary level, measured either as a proportion of the salary at primary level or as a proportion of the national income per capita.* In Madagascar, lower- and upper-secondary teachers cost respectively 1.8 times and 2.1 times that of primary teachers in 1993 (Péano and Rahaririaka, 1997). This was reduced to 1.5 in 1998 (World Bank, 2000). In Côte d'Ivoire the ratios are respectively 1.2 and 2.1. In Mali, total personnel costs per pupil are 2.5 times higher at lower secondary than at primary. The salaries of secondary-school teachers are equal to 4 times the national income per capita in Madagascar, 9.5 times the national income in Côte d'Ivoire and 10.4 times in Senegal.
- *The use of non-teaching staff.* There is an administrative staff member for every five teachers in Senegal in state lower-secondary schools and for every two teachers in upper secondary. Similarly there is one for every two teachers at both lower- and upper-secondary levels in Madagascar.

In most countries, teachers' salaries constitute by far the largest proportion of secondary-school costs: 81 and 80 per cent respectively in lower- and upper-secondary schools in Madagascar, 80 per cent in lower-secondary schools of Mali (to which should be added another 10 per cent for non-teachers' salaries). Schools are no longer offering boarding facilities: pupils have to organize themselves informally, i.e. by staying with relatives. Lunches are provided for some pupils, but are financed by the families (Madagascar). Families have to buy textbooks. Thus teaching materials constitute in most countries – with the possible exception of Côte d'Ivoire – a very small proportion of recurrent costs.

These unit costs are so high that some countries have started to take measures to reduce them. This is the case in Côte d'Ivoire, for example, where a secondary-school pupil used to cost, in 1980, 3.7 times as much as a primary-school pupil: this ratio came down to 2.2 times in 1993 thanks to the reduction in the number of teachers per class, and the lowering of the salaries of teachers who joined the civil service after 1991. Indeed, in 1991, the Government of Côte d'Ivoire, considering the relatively high salaries of teachers as expressed in terms of GNP per capita, decided to cut by half the salaries of all those who joined the civil service as teachers. The number of pupils per class was also reduced thanks to a reduction in the number of hours taught at lower-secondary level.

Countries like Senegal and Mali are increasingly using non-permanent and contract teachers: these represent now 11.2 per cent in middle schools in Mali; 28.2 per cent in general upper-secondary schools and 46 per cent in technical schools. This will eventually have an impact on unit costs. Mali also succeeded in significantly reducing the cost of lower-secondary school by making lower secondary part of basic (fundamental) education, simplifying the curricula, reducing the number of years and lowering the building standards. As a result of these measures, in 1994 a lower-secondary pupil cost only 1.7 times as much as a primary pupil. This has since increased to 2.5 in 1997. But an upper-secondary pupil cost a lot more: 8.17 times what a primary-school pupil cost.

There is no clear indication as to whether or not private schools cost less or more than government schools per pupil: it depends on the country and the type of private schools. In Madagascar, a secondary pupil mobilized, in 1993, 2.4/2.5 times fewer funds in a private than in a state school. In Mali, on the other hand, Catholic and non-religious schools cost more (by a factor of 1.7 and 3.6 respectively) than government schools in 1994. Their pupil/teacher ratios were lower; they employed more administrative staff. Catholic schools paid their teachers better. The non-religious schools, which constitute the majority of private schools, paid their teachers less, but their expenditures on teaching materials were higher (Péano and Esquieu, 1996). More research would be required to find out whether private schools cost more or less than government schools in the different countries, now that so many non-religious schools have been opened. It would also be interesting to find out how much subsidized schools cost the state, as compared to a government school, and with what effect.

### *Financing of secondary education*

In most countries government schools are heavily financed through the central government budget, even at the secondary level, but in view of the limitation of government resources families have been asked to contribute to non-salary costs.

There are no fees at all in the public schools of Côte d'Ivoire, but pupils have to pay for their textbooks, uniforms, and transportation. In Burkina Faso, there are no fees either, in principle, for those students who have passed the common entrance examination, but a contribution has to be made to the parents' association, and pupils who have not passed the entrance examination have to pay fees to the parents' association. This helps the school in buying materials or in paying the salary of temporary service teachers.

In Senegal, on the other hand, fees have been introduced that serve to finance the purchase of didactic materials and other non-salary costs. The fees are regulated by a Ministry decree. In addition pupils have to contribute to the parents' association. This last contribution varies from school to school and may in some cases be as high as the fees.[4] In Madagascar fees and other contributions are also collected in the public schools.

The state also gives some limited contributions to registered private schools. The policy in this respect varies from country to country; it also varies in time depending on the level of government resources. Direct contributions can take the form of direct grants to eligible schools, subsidies to individual teachers, and/or scholarships to students who meet all the criteria but cannot find a place in a state school. In Senegal and Madagascar the state can in principle subsidize registered private schools. This practice is not very common in Senegal but two-thirds of the schools in Madagascar receive such grants, however modest they may be. Also in Madagascar, the state gives a small subsidy to 40 per cent of all teachers in private schools (World Bank, 2000). In Mali, on the other hand, the state finances 80 per cent of the teachers' salaries in Catholic schools, but profit-making institutions – the vast majority – only receive some occasional help. In Burkina Faso and in Côte d'Ivoire the government increases the supply of publicly-financed places by buying places from private Catholic and Protestant schools with which they have a contract. The Ministry then pays the fees for those pupils who have passed the entrance examination but could not be enrolled in any public school.[5] In addition to offering direct subsidies the state also contributes indirectly by training private school teachers, by sometimes allocating some of its own trained teachers, and of course by having some of its teachers give a few hours of teaching at lower rates in private schools.

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[4] Between 500 FCFA and 2,000 FCFA per year depending on the school, while fees amount to 1,500 FCFA.

All in all, governments spent from 25 per cent (Burkina Faso, Senegal) to 36 per cent (Côte d'Ivoire) of their education budget on secondary education in 1996 (see *Table 10*). This share increased substantially between 1990 and 1996 in Mali and Madagascar, while it remained fairly stable in the other countries. This is more than can be said for primary education: in spite of all the commitments made in Jomtien at the Education for All Conference, the share of primary education declined in almost all countries except Burkina Faso. The share of higher education in the overall education budget also declined – except in Côte d'Ivoire – sometimes quite substantially, as in Burkina Faso and Madagascar. In the meantime the share of education in the overall budget increased everywhere except in Côte d'Ivoire and Madagascar, but its share in the GNP declined, as a result of the increasing weight of the external debt, the implementation of various adjustment programmes, and pressure to cut down on public expenditure. All in all, it can be said that secondary education has not lost its importance in the education budget in spite of the official priority for basic education. In some countries it even appears as being the main beneficiary of the reallocation of resources from higher towards basic education. Public resources are nevertheless quite limited: the proportion of the GNP that is spent on secondary education has declined in most countries except Mali. Will governments be able to spend more on secondary education in the near future? This has to be seen in the context of competing demands from other educational levels, particularly primary education. It is not sure that the past trend will continue if basic education for all is ever to be achieved.

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[5] Some 40,000 FCFA in Burkina Faso; some 120,000 FCFA for a lower-secondary student and 140,000 FCFA for an upper-secondary one in Côte d'Ivoire.

Table 6.10 Financing of secondary education

| | Education as % of public budget | | Share of primary education in government education budget | | Share of secondary education in government education budget | | Share of higher education in government education budget | | Education budget in GNP | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1990 | 1996 | 1990 | 1996 | 1990 | 1996 | 1990 | 1996 | 1990 | 1996 | 1998 |
| Burkina Faso | 16.7 | 18.3 | 41.7 | 56.6 | 25.8 | 25.1 | 32.1 | 18.3 | 3.6 | 3.4 | n/a |
| Mali | 25.0 | 25.2 | 46<br>(94) | 40.9 | 24.2 | 32.5 | 18.1<br>(94) | 16.4 | 3.1 | 2.5 | n/a |
| Senegal | 27.0 | 33.0 | 43.9 | 35.8 | 25.7 | 24.4 | 24.0 | 23.7 | 4.1 | 3.7 | 4.0 |
| Madagascar | 17.6 | 11.1 | 36.0 | 30.0 | 26.1 | 33.4 | 26.8 | 21.1 | 3.0 | 2.0 | 2.6 |
| Côte d'Ivoire | 35.6 | 24.0 | 49.7 | 45.2 | 35.6 | 36.2 | 14.6 | 18.6 | 7.7 | 5.0 | 5.0 |

*Source:* World Education Report 2000 and EFA country reports 2000.

## Why expand secondary education?

Is it in fact necessary and legitimate to expand secondary education in the countries concerned while primary education for all is yet to be achieved and while many secondary-school leavers are unemployed? No precise statistics are available on the unemployment rate by educational level, but it is a well-known fact that many secondary and university graduates in these countries are available on the job market, waiting for jobs. There are nevertheless several reasons that militate in favour of expanding secondary education:

*First,* it is difficult to motivate children to complete primary education if, beyond primary, opportunities for further studies are drastically limited. As primary education has expanded, and the primary education certificate has become the rule rather than the exception, its market value has considerably decreased. The only chance for a youngster to obtain access to a modern-sector job remains to enrol in some form of post-primary education, even if that chance is limited.

*Second*, levels of educational attainment after five or six years of primary education are unsatisfactory. Education can be expected to contribute to economic growth and poverty alleviation only if pupils do indeed acquire the necessary knowledge, skills and values required: essentially mastering literacy, numeracy and having some understanding of the world around them. According to one evaluation of learning assessment conducted in a number of African countries, only 31 per cent of Grade 5 pupils in Senegal attain the minimum level of mastery learning in a test measuring competences in literacy, numeracy and life skills; this proportion rises to 54.4 in Mali and 66.1 in Madagascar. The results are much lower if one looks at the proportion of pupils reaching the desired level of mastery learning in the combined test, since only 2 per cent of Grade 5 students reach that level in Senegal, 7 per cent in Mali and 11 per cent in Madagascar (Chinapah, 2000).[6] Similar results emerge from the analysis conducted by the Programme of analysis of education systems in five countries of the 'CONFEMEN[7]' (PASEC). The average scores on comparable standardized tests in French and in mathematics are not very satisfactory in any of the countries: 35 per cent of correct answers on average in Senegal, 45 per cent in Burkina Faso and Côte d'Ivoire and 51 per cent in Madagascar. The proportion of Grade 5 pupils with at least 40 per cent of correct responses[8] does not exceed 36 per cent in Senegal, 61 per cent in Burkina Faso, 63 per cent in Côte d'Ivoire and 76 per cent in Madagascar (CONFEMEN, 1999). An additional four years of secondary education would consolidate the basic knowledge of these youngsters and contribute to strengthening the countries' human and social capital.

There is no easy answer to the question: would additional resources be better used in increasing quality at primary to improve pupils' performance instead of lengthening the duration of basic education? The PASEC data however show that it is not in countries where the proportion of GNP spent on primary education is the highest, conditions of teaching apparently the best and education spending per pupil the highest, that learning achievements are the highest. Econometric analysis of the determinants of these learning achievements indicates that several factors that are important for the learning of children, such as the availability of books or the language of instruction, are not very expensive to provide, whilst other factors that are more costly, such as repeating, or a high education level of teachers, are not positively correlated with pupils' learning achievements (Michaelowa, 2000). In other words it should be possible to improve learning achievements at the primary level using the existing amount of resources in a different way. On the other hand, providing secondary education and lengthening the duration of basic education would increase youngsters' opportunities to learn, and would do so at an age when they are more likely to understand abstract concepts and to acquire higher-order skills.

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[6] Minimum level of mastery learning is attained when a student has 50 per cent correct answers on the test. The desired level of mastery learning is attained when a student has 89 per cent correct answers.

[7] Conférence des Ministres de l'Education ayant le français en partage.

[8] Barely above chance level. A pupil answering at random could get 30 per cent of correct answers.

*Third*, given the current structure of the economy in most of these countries, the majority of secondary-school leavers are, at least in the coming years, likely to join the informal sector. Several studies have shown that the productivity and the income of the self-employed rise with their educational level, and that secondary-school leavers are more likely to work in the most modern part of the informal economy, thus contributing to overall economic modernization and the fight against poverty (Birks et al., 1994).

*Fourth*, it is not clear how HIV/AIDS will affect primary- and secondary-school teachers in the countries concerned. The rate of prevalence is quite high in countries such as Burkina Faso and Côte d'Ivoire. It may very well be necessary in these two countries to train more students at secondary-school level so as to replace primary teachers that are sick or dying. Moreover, the majority of present secondary schools are concentrated in the urban areas. Just as to reach universal primary education it will be necessary to increase coverage and teacher recruitment in rural areas, it seems important to increase the coverage of secondary and to pay due attention to the spatial distribution of schools.

*Fifth*, francophone countries have typically lower enrolment rates at secondary level than anglophone countries at an equal or even lower level of economic development.

Different policy options could be considered by francophone countries in order to finance a higher participation of their youngsters in secondary education:

- *Increasing the share of the GNP and of the budget spent on education*. In several of the countries concerned (e.g. Mali, Burkina Faso and Madagascar) the current level of spending on education expressed as a proportion of GNP is still relatively modest compared to other low-income countries. It is to be remembered however that the fiscal base on which public resources are drawn is relatively limited in many of these countries, that the share of government spending in the GNP has been curbed by various adjustment programmes and that there are many competing demands on the budget including servicing the external debt. In such a context, to increase the share of education in the overall budget and in the GNP may not be so easy. It will require strong political will and a real commitment in favour of education. Senegal seems to have taken that path as from 1996. Côte d'Ivoire, on the other hand, has had to reduce drastically the proportion of its yearly budget on education, from 35 per cent in the early 1990s to 24 per cent. Hopefully, thanks to the more rapid economic growth that countries started to enjoy in the late 1990s, more resources will be made available to both governments and families to spend on education. Several of these countries will be entitled to debt relief within the Highly Indebted Poor Countries initiative of the World Bank and IMF (HIPC). The sums that will thus be released are likely to be important but the ministries of education will have to compete with health and other social sectors and many conditions may be posed before the money is available. Last but not least, within the education sector itself there are many competing demands on the budget.

- *Increasing the share of the budget allocated to secondary education in the overall education budget.* Considering that primary education is still far from universal, and that much of the expansion of primary schooling in recent years has been possible thanks to a heavy mobilization of communities which build and maintain schools, and recruit and pay voluntary teachers, it seems difficult to argue that funds should be taken away from primary to be allocated to secondary, at least in the short run. Higher education is also very expensive and takes a fair part of the budget, but this share has already declined in many of the countries. The conditions of learning at that level are already also so critical that cutting the sub-sector budget further might compromise the formation of a real human capital and the capacity to train the managers, leaders, scientists and teachers that are needed for future development. Expenditure on vocational education has also been considerably reduced, and development in that sector has taken place very much through a higher participation from the private sector. Cutting much further on government expenditure might endanger the creation of a skilled labour force. It is difficult to establish how much should be spent on each educational level and this has to be seen on a case-by-case basis, but, as mentioned above, secondary education has not really suffered in the process of reallocation of resources in favour of basic education. Thus it is likely that in the coming years resources for secondary education will grow at the same speed as the overall education budget; more will have to be achieved with the present level of resourcing.

- *Increasing the efficiency of the education system.* Reducing repetition would decrease the number of years necessary to produce a graduate, and nearly twice as many graduates could be produced with the same resources. Studies conducted on achievement levels at primary have shown that repeating contributes to improving learning achievements for the lowest achievers only, and that even for them the effect is temporary, i.e. does not last more than one year. Repetition, on the other hand, does not contribute to improving the achievements of middle achievers (CONFEMEN, 1999). These studies also show that similar levels of repetition can be observed in all schools independent of what pupils really know: some pupils are asked to repeat in one school who would not have to repeat should they be enrolled in another school. This is indicative of a culture according to which teachers consider normal that a certain proportion of their pupils, the weakest, repeat. The same culture of repetition probably prevails at the secondary level and would explain the very high repetition rate observed at that level. Repetition is however a curriculum issue: it depends on what teachers and curriculum specialists have fixed as being essential to know in order to go on to the next grade. This could be changed and adapted to the level of knowledge and the requirements of students. The implicit reference to the baccalaureate as the entry examination to universities is a problem in this respect. What needs to be known to pass first the lower-secondary certificate and, later, the upper-secondary school certificate constitutes an implicit norm, which influences teaching throughout the whole of secondary education. Should the curriculum of secondary education be redefined so as to emphasize the acquisition of knowledge, competences and skills to be used in day-to-day life as a citizen and as a worker, rather than the requirements to enter higher education, then achievement levels could be improved and the number of pupils repeating could be reduced. Overall repetition rates could also be reduced, should different measures be taken that aim at providing additional support to slow learners and students who missed some lessons for one reason or another.

Another way of reducing repetition would be to limit it to certain grades such as the end of a cycle. Mali has introduced such a policy in basic education. Repetition rates have thus declined from 30 per cent in 1990/91 to 13.6 per cent in 1996/97 in Grade 1, from 35 per cent to 26 per cent in Grade 5 and from 49 per cent to 35 per cent in Grade 9. They remain very high however in the last grade of each cycle (37 per cent and 35 per cent respectively in Grades 6 and 9).

Repetition rates at the last grade of a cycle are clearly linked to the existence of a selective examination. Those who fail the examination repeat in the hope that they will succeed a second time. Opening access to secondary should contribute to reducing the numbers of repeaters in the last grade of primary (as occurred in Grade 5 in Mali). At one point or another however selection will be necessary, be it at the end of lower secondary and/or at the end of upper secondary. Several options are available: one is to allow only one repetition in state schools. Those who have not achieved a certain level when taking the examination the first time, or those who fail twice, would not be allowed to repeat in a government school and would either have to stop their schooling, take the examination again without having followed classes, or continue in a private school. Another complementary option would be to completely separate the examination(s) certifying the end of a cycle from the selection examination to enter the next cycle/level: the baccalaureate would cease to be the passport for entering higher education and a higher education entrance examination would have to be organized. This debate is not new nor is it specific to the francophone countries of Africa (Keeves, 1994); many suggestions have been made on how to do this as well. The decision is a political one. It is however an important issue to tackle if secondary education is to be expanded in French-speaking countries. This would free a lot of places which could be offered to others, and could also contribute to improving the relevance of secondary education.

- *Curriculum reform.* In most of the countries of the region, the content has not really been revised at secondary level.[9] Apart from the necessary changes in history and geography, the curriculum continues to be very much influenced by the one used by the former colonial power. Although the primary curriculum may have been revised, it has not been made terminal and continues to prepare for secondary education, which itself prepares for higher education. The goals of the lower-secondary schools are not well defined: which skills, which competences are they trying to develop? What should the youngsters actually know when they leave school? For what sort of adult life and working life should they be prepared? Similarly, the objectives of general upper-secondary schools are not clear, apart from preparing for universities, the access to which will become more and more limited. The lack of relevance of secondary education is what explains the relative demand for technical courses at post-primary level. These courses are, however, expensive and altogether not very efficient.

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[9] A movement of reform of content, covering most countries of French-speaking Africa, is under way, conducted by curriculum specialists of the individual countries. The objective is to harmonize the curriculum in the region's various countries. It should lead to the preparation of textbooks.

Thus curriculum reform appears necessary to improve the quality and relevance of secondary education: hopefully students would find it easier to learn a programme which is of more direct concern to them; they might also be more prepared to take a job outside the formal sector of the economy. This reform would obviously concern content and teaching methods but it could affect as well the weekly number of hours and the number of subjects taught at different levels, which would have a consequence on unit costs. Presently in general lower secondary, some seven subjects are being taught that require specialized teachers. Many teachers do not teach more than one or two subjects, as they have not been trained for more. Should the number of hours taught and the number of compulsory subjects in the curriculum be reduced, fewer teachers would be required to cover the whole curriculum of one class. Preparing teachers to be more versatile would also facilitate their full utilization in small schools. Their average teaching load would be increased, the number of teachers required per class would be lower and so would the cost. The reduction in the number of periods taught at lower-secondary level in Côte d'Ivoire has succeeded in reducing the teacher/class ratio, and hence the cost of secondary schooling, as we have seen. A similar measure is considered in Senegal.

- *Structural reform and school organization.* Together with the curriculum reform, a structural reform can be envisaged so as to reduce the number of years of secondary education, particularly lower secondary. In most countries in the world school education (primary plus secondary education) lasts 12 years: in several of the francophone countries of Africa it lasts 13 years. The number of years of lower secondary – four years – could be reduced so as to make up, together with primary, a nine-year basic education (as was done in Mali). Cutting one year would obviously reduce the overall cost of secondary. Promotion to lower-secondary education could eventually be made quasi-automatic, saving on the cost of repetition and on that of organizing the examination. This of course could not be done without major structural and content revision affecting several aspects including teachers' recruitment and payment. This would form part of the curriculum revision as discussed above, defining in a realistic way what a youngster needs to know at the end of 9/10 years of basic education. An integrated nine-year basic education could also help in providing secondary education in the rural areas at a lower cost, with fewer teachers and less sophisticated equipment and buildings: with smaller schools, possibly attached to a primary school rather than to an upper-secondary school, and with fewer, more versatile teachers covering several subjects in an integrated way.

Structural reforms can be costly to implement and take a long time before they are put in practice. Hence the need for such reforms has to be carefully assessed, taking into account several criteria, apart from costs. Even without such reform, however, a careful analysis of the spatial distribution of institutions at all levels and of the criteria for opening new secondary schools in rural areas could be done. The possibility of combining different levels of schooling under the same roof (primary and lower secondary; lower secondary and upper secondary) should be considered in rural areas so as to reduce drop-out from one level to another, reduce distances and share certain costs such as administration and maintenance. Most private schools do indeed offer different levels of schooling, thus taking advantage of economies of scale.

- *Reducing the cost of secondary schooling*. As was seen above, not much saving can be expected from increasing the number of pupils per class, which is already very high. No big economies can be made on non-salary costs either, as teaching conditions have already considerably deteriorated. While in some instances savings could be made on non-teaching salary costs (on administrative staff for example), other non-teacher unit costs may have to be increased, so that schools can be equipped with furniture, books and equipment of all kinds, facilities maintained and teacher supervision and support organized.

Two measures may be considered that would help in reducing the salary cost per pupil. One is to increase the proportion of qualified but untrained teachers to be appointed as contractual teachers: they could be trained through on-the-job training and distance training. In the meantime they would be paid less than the present qualified permanent teachers. Similar teachers are already employed by private schools, receiving lower salaries, and it does not seem to be too much to the detriment of the quality of schooling. Senegal and Mali have started doing so, making it an official policy in Senegal after several rounds of negotiations with the trade unions and other stakeholders. Such a policy also enables jobs to be provided for a number of unemployed university graduates. The important thing is to pay them regularly (something which has not always been guaranteed in the past, even for civil servants) and to offer them the opportunity of eventually becoming part of the civil service.

Another way of reducing the teaching cost per pupil would be to increase both teachers' effective teaching load and their official working load (at present 18 or 22 periods). An increase in the average teaching load of four periods would allow for an increase in the number of pupils enrolled by nearly 20 per cent for the same cost. To increase the effective teaching load would imply using more appropriate methods of teacher deployment and a better human resource database. A better database would make it possible to identify the schools where teachers are underused; it could also help assess the number of teachers who are presently paid on the secondary education budget although they have not taught for years (for example because they are seconded elsewhere). A reduction in the number of subjects taught at lower-secondary level, as discussed earlier, would also help increase the teachers' rate of utilization, provided not too many options are offered. Increasing the official teaching load may be a more difficult measure to implement. However many government teachers are now teaching additional periods in private schools to supplement their salaries. They often end up investing more effort in teaching pupils in schools that pay them less and that are not their main employer, probably because private school managers are more demanding in terms of quality and outcome and because the job is not guaranteed. The challenge is to re-motivate teachers to teach more periods in their own school with the same salary. This obviously depends on the specific situation in each individual country; it also requires serious negotiations. Different measures such as improved teaching conditions, closer association in the renovation of the curricula, involvement in the management of the schools, school-based support and the existence of different training opportunities, eventually leading to promotions, could contribute to such mobilization.

- *Reducing the costs of construction.* The lack of buildings and classrooms is a major stumbling block in the expansion of secondary education. Unlike what occurs in many English-speaking countries, few secondary schools have been built by the local communities. The tradition is for the state to build the schools, often with the support of international development banks and bilateral agencies. As a result the standard of school buildings tends to be high, higher than what a local community can support or maintain. The cost of school construction could be considerably reduced, were the construction standards to be modified. This seems to be essential at lower-secondary level, providing for example schools with multi-purpose rooms and science kits rather than laboratories and expensive science blocks (Caillods, Göttelmann-Duret and Lewin, 1997). Even at upper-secondary level, economies could be made on school facilities including on the type of laboratories built.

- *Diversifying the source of finance for state schools.* Fees could be raised in state schools and/or their level increased so as to allow individual schools to purchase more equipment and materials, to employ non-teaching staff and ensure maintenance. While poor families, particularly rural families, contribute so much to financing primary education and non-formal education programmes, it does not seem unfair to ask those who can afford it to contribute to the secondary education of their children. These measures would not necessarily lead to increased disparities if fees are waived for the most promising children who cannot afford them. What seems important is that the product of the fees should remain at the school level, to be used at the school level in order to improve the quality of education; another important point is that there should not be a multiplication of the type of contributions and fees required (for the schools, for the pupil-teacher association). Certain expenses would be better financed by the state, such as the teaching and non-teaching staff, and scholarships for poor but bright children. Some systems of needs-based formula funding could also be developed so that schools in smaller towns and in rural districts would be assured of the same level of resourcing as for those in richer areas.

Another possibility would be to pass the responsibility for the construction and maintenance of schools to a decentralized level (regions or municipalities). This is already the case in Senegal and Côte d'Ivoire. The efficiency of the measure has to be assessed in each national context: it depends on the resources that these entities control or can raise and on whether it is less expensive for the regional authorities to build and to maintain than for the state. Otherwise, decentralizing might simply end up in creating expensive bureaucracies, which do not necessarily have staff that are more trained and more competent, while leaving the problem unchanged. In other words, it might be more efficient in the medium term, when the personnel at the different levels have been trained, but not immediately.

A final solution would be to allow each school to enter into various partnerships with local associations, enterprises and NGOs: while this is more likely to happen in technical schools than in general schools, it should not be altogether excluded for general schools. It implies changing the culture of many headteachers, who would have to be trained to become real managers.

- *Increasing the size of the private sector*. This can be done through making the creation of a secondary school easier in countries where the share of the private sector is still limited. Most countries have simplified the procedure for opening a private school. Senegal, for example, is now authorizing the creation of private schools as soon as an official file has been deposited, without waiting for it to be approved. Côte d'Ivoire and Burkina Faso have reduced the pressure on state schools by sending pupils to private schools, which are fully or partially subsidized. Madagascar has a long tradition of private schools.

There may be a limit to the development of a totally self-financed private sector, given the fact that the income of parents has decreased drastically in recent years. The issue is then whether the state should finance the private sector at all, on what criteria and to what extent. Obviously a situation where the state pays more for a pupil in a private school than in a state one is difficult to justify (as for certain Catholic schools in Mali), but a lower level of subsidies as a flat grant to the school (financing a certain number of teachers), training its teachers or giving scholarships to its neediest students would make sense on economic as well as social grounds. It might actually be more efficient for the state to subsidize private schools that meet certain criteria, on the basis of a few teachers per school or matching grants, rather than favour public schools only and block the expansion of secondary education because of lack of public funds. The amount to be spent on private schools would depend on the resources that the state has at different points in time, expanding the subsidies as more funds become available.

- *International assistance is another option for financing the expansion of secondary education.* Many countries are already fairly dependent on international assistance and loans to finance their building costs. This will obviously continue, taking into account what was said earlier on reducing construction costs. Beyond such expenditure, international assistance can be extremely helpful if it is focused on those areas where international experience is most needed, such as curriculum development, teacher training, financing of textbook production, examination reforms etc. This will be developed further in Chapter 10 of this book.

## Final remarks

There is no magic formula that determines exactly how much should be spent on secondary education in the different countries. What is clear is that the present Malthusian policy, which implicitly restricts access to labour market requirements, has succeeded neither in allowing the necessary development of primary education nor in training the necessary workforce to enter the twenty-first century. For the reasons developed in this chapter, lower-secondary education would best be substantially developed so as to eventually become part of basic education for all. Several measures could be taken to do this, which involve reducing teaching costs, using assistant and contractual teachers, limiting repetition, using existing resources more efficiently, and adopting a more liberal policy towards private education. What is more difficult to define is how much upper-secondary education should be allowed to expand. Clearly the expansion of lower secondary will create additional pressure on upper secondary. In view of the limited resources, during a first phase a severe selection process is likely to continue to take place at the end of lower secondary. How many will have access to upper secondary will depend on each country, the social demand for such an education, and the willingness of families to pay for such an education.

As long as an overproduction of graduates still prevails, it might not be justified to substantially increase the public investment at that level. But it will be necessary to guarantee that a minimum number of well-trained graduates reach the end of secondary education (and higher education) and to ensure equality of opportunity. It is at that level that a trade-off between quality and increased access will have to be found. This will probably require reviewing the present financing policy of both public and private schools.

# Chapter VII

# Financing secondary schools in Sri Lanka: high participation and low costs

*Keith M. Lewin and Sugath Mallawarachchi*

## Introduction

Sri Lanka provides high levels of access to primary and secondary education to its school-age population. Though it is a low-income country with a GNP per capita of about $740 (1996), it had gross enrolment ratios of 103 per cent at primary, 66 per cent at secondary and 4 per cent at tertiary level by the mid-1980s. Primary gross enrolment ratios of more than 90 per cent were first achieved in the 1960s. By 1993 participation rates for the population aged 5-14 had reached 93 per cent (rural) and 96 per cent (urban). In the labour force as a whole the mean years of schooling reached over nine years in 1995, indicating success in achieving and maintaining high enrolment rates throughout primary and secondary school. Overall, 4.1 million pupils are enrolled in school, of whom 1.8 million are in the primary Grades (1-5), 1.4 million in junior secondary (Grades 6-9), and 0.9 million in senior secondary (Grades 10-13). Thus, more students are enrolled in total at secondary level than in the primary grades.

This impressive record of educational provision has been achieved without unusually large allocations of funds. The percentage of GNP invested in education was below 3 per cent until the mid-1980s and has subsequently averaged less than 3.5 per cent. The share of education in government expenditure has typically been 7-8 per cent, peaking in 1994 at 10.5 per cent, since when it has fallen back to below 8 per cent (ADB, 1996). These levels are below many other Asian countries (Lewin, 1998).

This case study offers some insights into the characteristics of the Sri Lankan education system that have made it possible to provide widespread access to secondary-level schooling to a substantial proportion of the school-age population.

First, it describes salient features of the organization and recent development of the education system. Second, an overview is provided of characteristics of schools, enrolments, flows of pupils through the school system. Third, the system of financing schools is described. Fourth, a series of analyses are presented, based on data from a sample of 532 schools identified for this study, to establish the patterns of salary costs and costs per pupil. Indicators of performance are also linked with the size of enrolments and pupil/teacher ratios. Fifth, demographic projections are presented. Sixth, changes in the budgetary system and proposed reforms are reviewed. Seventh, a simulation model is used to project enrolments, costs and teacher demand under different scenarios. Finally, some emerging issues are discussed along with a summary of the conclusions from the analysis, including some which may have general applicability to problems of financing secondary schools.

## 1. Basic features of the education system

Sri Lanka has a long educational history associated with Bhuddist pirivenas (temple schools), Hindu temples and mosques stretching back over many centuries. Portuguese and Dutch colonists organized parish schools in the areas they occupied. The British formally occupied the island in the early nineteenth century and by 1868 there were nearly 1,000 schools enrolling 35,000 children. Mission schools grew up rapidly alongside the government schools. Elementary education became compulsory in the early twentieth century and by 1931 the number of schools had risen to over 4,000, of which about 1,500 were government schools. Most of the remainder were government aided. These schools enrolled about 600,000 pupils. Nearly 6,000 schools existed at the time of independence in 1947. Almost all schools became government schools after the takeover of the government-assisted schools in 1961.

In the recent past, total enrolments in the school system grew from 2.8 million in 1971 to 3.9 million in 1988. The number of schools grew by about 10 per cent, whilst enrolments increased by about 40 per cent, thus increasing average school size. Primary enrolments (Grades 1-5) expanded slowly from about 1.8 million to 2 million over this period. Enrolments above Grade 8 increased from 378,000 to 985,000, representing 13.5 per cent of the total in 1971 and 25 per cent by 1988. Thus, recent enrolment growth has been concentrated above Grade 8, as would be expected from the early progress made towards high gross enrolment ratios in primary grades. Higher education has remained relatively small in terms of total enrolments. Currently there are 12 universities with a total of 32,000 students, reflecting an enrolment of about 2.5 per cent of an age cohort.

Since 1987, responsibilities for education have been devolved to provincial authorities. The school system, which now consists of about 10,300 schools, is almost totally administered by the Provincial Councils. The exceptions relate primarily to about 270 'National Schools', which are directly administered by the National Ministry of Education and Higher Education. School structure matters, provision of facilities (including teachers), implementation of curriculum and supervision, and monitoring of performance are undertaken by the Provincial Authorities. The recruitment and posting of graduate and trained teachers is a function of the Provincial Councils. Uncertificated teachers are recruited by the National Public Service Commission and are subsequently offered opportunities to be trained. Curriculum development, the production of textbooks and teacher training are all responsibilities reserved by the National Ministry.

The education system uses Sinhala or Tamil as the medium of instruction and schools are usually one or the other, with a small number operating in both media. Most schools are of mixed sex. A common curriculum exists throughout the primary grades, which includes first language (mother tongue), English, mathematics, beginning science, environmental activities, aesthetics. The secondary curriculum consists of nine subjects: first language (mother tongue), English, mathematics, science, social studies, health and physical education, aesthetics, life skills/technical subjects, religion. Life skills is taught in years 7 and 8, while Technical subjects are included in the syllabus for years 9 to 11. The General Certificate of Education (GCE 'O' level) is held in Grade 11 and determines access to advanced level classes. GCE advanced level has three main streams, arts, commerce and science in Grades 12 and 13.

Administratively schools are classified into types that do not exactly follow grade levels in a conventional sense. Most schools have both primary and secondary grades. The classification is:

| | |
|---|---|
| Type 1AB | Mostly providing Grades 1-13, but some only have Grades 6-13; all subjects are offered at university entrance levels, including science. National schools are similar to Type 1AB schools, but are administered by central government. |
| Type 1C | Similar to Type 1AB without science at higher levels. |

| | |
|---|---|
| Type 2 | Schools offering Grades 1-11 or 6-11. |
| Type 3A | Schools with Grades 1-8. |
| Type 3B | Schools with Grades 1-5. |

Type 3 schools account for about 41 per cent of the total number of schools; Type 2 schools about 37 per cent; Type 1C, 17 per cent, and Type 1AB about 6 per cent. The proportion of enrolment in the different types of school is 18 per cent, 33 per cent, 29 per cent and 20 per cent respectively and the proportion of teachers 19 per cent, 29 per cent, 35 per cent and 17 per cent.

The number of government schools, enrolments, number of teachers and pupil/teacher ratios for schools in 1991 are shown in *Table 7.1*. In addition to government schools, basic education continues to be provided in pirivenas and in private schools, most of which cater to urban middle-class children. Collectively, these account for a very small proportion of total enrolment.

Table 7.1 Number of schools, enrolments, number of teachers, pupil/teacher ratios by school type, 1991

| | Urban | | | | Rural | | | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| Type | Schools | Pupils '000 | Teachers '000 | PTR | Schools | Pupils '000 | Teachers '000 | PTR | Pupils '000 | Teachers '000 |
| 1AB | 196 | 378.2 | 14.2 | 26.5 | 317 | 458.8 | 18.3 | 25.2 | 836.9 | 32.4 |
| 1C | 159 | 155.0 | 6.1 | 25.3 | 1,351 | 1,039.2 | 43.4 | 23.9 | 1,194.2 | 49.5 |
| 2 | 297 | 159.8 | 6.3 | 25.2 | 3,284 | 1,222.4 | 53.7 | 22.8 | 1,382.2 | 60.0 |
| 3 | 194 | 56.9 | 2.0 | 28.0 | 4,200 | 664.8 | 26.7 | 24.9 | 721.8 | 28.7 |
| Total | 846 | 750.0 | 28.7 | 26.1 | 9,152 | 3,385.1 | 142.0 | 23.8 | 4,135.1 | 170.7 |

*Source:* Ministry of Education and Higher Education; Educational Statistics, 1992.

Pupil/teacher ratios do not vary widely between school types, though there is substantial variation between schools. In the early 1990s about 45 per cent of teachers were trained, another 23 per cent were graduate teachers and the remaining 32 per cent were untrained. Average pupil per trained-teacher ratios appear to vary between about 34:1 (Kegalle District) and 117:1 (Mullativu District) (ADB, 1997). The variation in overall pupil/teacher ratios is much less between districts and varies from 19:1 (Kegalle) to 38:1 (Kilochchi). One response to the high ratios in some areas was the recruitment of nearly 70,000 teachers between 1988 and 1991 to fill vacancies in remote rural schools.

The flow of students through the education system is unrestricted by selection tests up to Grade 11. Data from 1992 indicated that about 80 per cent of those who enter in Grade 1 proceed to junior secondary cycle (Grades 6-8). Repetition rates in the early 1990s were between 5 and 9 per cent over the primary cycle and 1 per cent and 6 per cent in Grades 6-10. Grade 11 had very high repetition rates (32 per cent) driven by re-sitting 'O' level examinations. Grade 12 has virtually no repetition and Grade 13 high rates as a result of 'A' level re-sits. Drop-out was estimated at around 2 per cent for most of the primary grades.

Teachers' salaries are not linked to the level at which teachers teach, but to qualification and experience. The ratio between the highest and lowest paid is about 3:1. For trained teachers this ratio is only 2:1, independent of whether they are teaching at primary or secondary level. *Table 7.2* shows the salary scales.

Table 7.2 Salary scales for teachers proposed in 1996, Rupees (Rps)

| Qualification | Salary range |
|---|---|
| Uncertificated teachers | 32,520 – 57,120 |
| Certified teachers | 36,420 – 57,120 |
| Two-year diploma holders | 47,720 – 77,280 |
| Trained teachers | 45,120 – 83,400 |
| Untrained graduates | 48,720 – 101,400 |
| Trained general graduates | 51,120 – 101,400 |
| Untrained Honours graduates | 51,120 – 101,400 |
| Trained Honours graduates | 54,720 – 101,400 |

*Source:* World Bank, 1996:45.

Sri Lanka has a policy of free education from Grades 1 to 13. Schooling facilities are widely distributed throughout the island and primary school-age children rarely have to travel more than 4 kms to the nearest school. The quality of education has been enhanced by a free textbook scheme for all children in Grades 1 to 11 introduced in the early 1980s. Textbooks at secondary level are not free, but are subsidized. Curriculum development has been institutionalized at all levels since the 1960s, and there is an established infrastructure for teacher training and in-service programmes. Free uniforms are provided. These, along with free textbooks appear to account for the bulk of non-salary expenditure (as much as 75 per cent of school level). Noon-time meals are also provided as a universal benefit and these were costing amounts considerably more than the costs of uniforms or books. It has been estimated that subsidies (predominantly meals, scholarships, and uniforms) may account for as much as 30 per cent of recurrent expenditure on education (ADB, 1997).

Small facilities fees are charged of about 5-10 Rps per month and are levied on a discretionary basis. Other contributions are made through school development societies and old students associations. These vary widely between schools and in only a few cases are these a substantial source of additional funding. Taken together these contributions amount to no more than about 3 per cent of total government expenditure on education.

## 2. Characteristics of schools and flows of pupils

A basic profile of enrolments, teachers and administrative staff in a sample of 532 schools was developed. The sample was based on about 10 per cent of Type 1AB schools and 5 per cent of other types. The reason for weighting the sample this way was to ensure that there were more than 50 Type 1AB schools, thus ensuring a large enough group for indicators to be representative of Type 1AB schools. This would not otherwise have been true. The data are for 1997 and are drawn from the school census system.

*Table 7.3* shows enrolments and *Table 7.4* shows how trained and untrained teachers and administrators are distributed across the schools in the sample.

Table 7.3 Average enrolment in different types of schools, 1997

| School type | Average primary enrolment | Average secondary enrolment |
|---|---|---|
| 1AB | 458 | 948 |
| 1C | 316 | 465 |
| 2 | 163 | 188 |
| 3 | 120 | 53 |

Table 7.4 Enrolments, teachers by qualification, and administrators in sample schools, 1997

| School type | Enrolment primary | Enrolment secondary | Primary teachers graduates | Primary teachers trained | Primary teachers untrained | Total primary teachers | Secondary teachers graduates | Secondary teachers trained | Secondary teachers untrained | Total secondary teachers | Administrative staff | Pupils per administrative staff |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1AB | 26,544 | 54,962 | 98 | 503 | 177 | 778 | 1,238 | 1,216 | 335 | 2,789 | 193 | 350 |
| 1C | 28,116 | 41,382 | 86 | 469 | 340 | 895 | 758 | 922 | 409 | 2,089 | 126 | 392 |
| 2 | 29,646 | 34,253 | 89 | 529 | 444 | 1,062 | 443 | 786 | 527 | 1,756 | 159 | 271 |
| 3 | 24,238 | 3,448 | 97 | 537 | 408 | 1,042 | 48 | 84 | 72 | 206 | 101 | 142 |
| Total | 108,544 | 134,045 | 370 | 2,038 | 1,369 | 3,777 | 2,487 | 3,008 | 1,343 | 6,838 | 579 | 115 |

Type 2 and 3 schools have the smallest average enrolments at both levels, as might be expected. Type 3 schools are not supposed to acquire secondary grades, but some do. The average secondary enrolment in these schools is therefore based on those Type 3 schools which have secondary enrolments.

*Table 7.4* indicates that in these sample schools there are 3,778 primary teachers of whom about 36 per cent are untrained. A little less than 10 per cent are graduates. At secondary level, there are 6,860 teachers of whom 20 per cent are untrained and 36 per cent are graduates. About 5 per cent of all staff are administrative on these figures. Most untrained teachers are to be found in Type 2 and 3 schools.

The pupil/teacher ratios in different types of schools are shown in *Table 7.5*. The calculations are based on an aggregation of the number of teachers and pupils in each type of school in the sample.

Table 7.5 Pupil/teacher ratios by school type for trained and untrained teachers, 1997

| School type | PTR primary trained | PTR primary untrained | PTR secondary trained | PTR secondary untrained | PTR primary | PTR secondary | Overall PTR |
|---|---|---|---|---|---|---|---|
| All | 45.1 | 79.2 | 24.3 | 99.8 | 28.7 | 19.5 | 22.8 |
| Type 1AB | 44.2 | 150.0 | 22.3 | 164.1 | 34.1 | 19.6 | 22.8 |
| Type 1C | 50.7 | 82.7 | 24.6 | 101.2 | 31.4 | 19.8 | 23.3 |
| Type 2 | 47.9 | 66.8 | 27.8 | 65.0 | 27.9 | 19.5 | 22.6 |
| Type 3 | 38.2 | 59.2 | 26.8 | 48.5 | 23.2 | 17.2 | 22.2 |

Overall average pupil/teacher ratios do not vary much. At primary, the lowest ratio of pupils to trained teachers is in Type 3 schools. This group of schools also has the lowest overall average ratios at primary as they do at secondary. Type 3 schools which enrol secondary pupils have overall average ratios about 14 per cent less than other schools.

These aggregate ratios do not indicate variations between schools of the same type. It is this that will determine how much contact pupils have with teachers in particular schools. Some indication of the range of variation in pupil/teacher ratios by school type is given in *Table 7.6*, which is based on school-by-school ratios.

Table 7.6 Variation in pupil/teacher ratios by school type, 1997

| School type | Primary pupil/teacher ratio | | Standard deviation | Secondary pupil/teacher ratio | | Standard deviation |
|---|---|---|---|---|---|---|
| | Min | Max | | Min | Max | |
| Type 1AB | 18 | 58 | 8.5 | 7 | 41 | 6.3 |
| Type 1C | 15 | 45 | 8.1 | 9 | 60 | 6.6 |
| Type 2 | 3 | 149 | 20.2 | 2 | 75 | 11.6 |
| Type 3 | 5 | 138 | 18.4 | 5 | 112 | 20.9 |

The range of pupil/teacher ratios and the associated standard deviations are greatest in Type 2 and 3 schools. The spread should be reduced both on grounds of equity and efficiency and this is consistent with current policy. The problem has however been long standing (Lewin and Berstecher, 1989).

The flow of students through the schools is illustrated in *Table 7.7*. This shows how secondary-level students are concentrated in Type 1 and 2 schools.

Table 7.7 Enrolments by grade and school type – totals and averages, 1997

| | Grade | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| School type | 1 | 5 | 1-5 | 6 | 10 | 11 | 6-11 | 12 | 13 | 12-13 |
| Enrolment | | | | | | | | | | |
| All | 20,390 | 21,965 | 108,667 | 22,740 | 19,488 | 26,579 | 133,850 | 8,133 | 10,346 | 18,479 |
| 1AB | 5,030 | 5,130 | 26,006 | 7,244 | 8,712 | 12,218 | 54,066 | 6,817 | 8,968 | 15,785 |
| 1C | 5,380 | 5,931 | 28,918 | 7,199 | 6,238 | 8,591 | 42,538 | 1,288 | 1,360 | 2,648 |
| 2 | 5,542 | 6,263 | 30,010 | 7,050 | 4,510 | 5,754 | 34,493 | 32 | 27 | 59 |
| 3 | 4,446 | 4,628 | 23,681 | 1,278 | 66 | 48 | 2,959 | 0 | 0 | 0 |
| Average enrolment | | | | | | | | | | |
| 1AB | 44 | 45 | 228 | 64 | 76 | 107 | 474 | 60 | 79 | 138 |
| 1C | 30 | 33 | 161 | 40 | 35 | 48 | 236 | 7 | 8 | 15 |
| 2 | 15 | 17 | 81 | 19 | 12 | 16 | 93 | 0 | 0 | 0 |
| 3 | 11 | 12 | 59 | 21 | 0 | 0 | 7 | 0 | 0 | 0 |

The cohort in the sample schools remains fairly constant in size from Grades 1 to 10. This is the result of the interaction of repetition, drop-out and the underlying growth in the size of the school-age cohort. Type 1 and 2 schools receive students from Type 3 schools, resulting in their cohorts increasing in size above Grade 5. Grade 11 is artificially inflated by repetition for 'O' level.

*Table 7.7* shows that some Type 3 schools are enrolling pupils above Grade 5. Some even remain above Grade 8. This is the result of community ambitions to have a Type 2 school providing secondary grades. Though these enrolments are not formally permitted in Type 3 schools, it is clear that they exist in significant numbers below Grade 8. The average level of enrolments suggests that this is an expensive option, since cohort sizes average less than 20 in the type of schools that have these secondary enrolments. It is therefore a source of significant cost inefficiency, especially if most pupils do not make the transition to 'O' level and complete the secondary grades successfully.

The average cohort size across the sample schools at primary level (Grades 1-5) drops from 45 at primary in Type 1AB schools to only 12 in Type 3 schools. For this to be consistent with pupil/teacher ratios, it must be the case that multi-grade teaching is significant in Type 2 and 3 schools or that classes are left without teachers during teaching time. Type 2 schools have low cohort sizes up to Grade 11. Type 1C schools have small average enrolments in 'A' level classes.

Repetition is a significant feature of enrolment flows. *Table 7.8* shows the incidence of repetition in the sample.

Table 7.8 Repetition rates by school type and grade (%), 1997

| | Grade | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| School type | 1 | 5 | 5 average | 6 | 10 | 11 | 6-11 average | 12 | 13 | 13 average |
| 1AB | 1.5 | 3.3 | 2.6 | 2.2 | 1.0 | 31.2 | 9.1 | 0.4 | 36.6 | 21.1 |
| 1C | 2.8 | 2.4 | 3.3 | 2.7 | 0.8 | 35.3 | 9.1 | 0.0 | 26.7 | 13.7 |
| 2 | 4.7 | 5.0 | 5.9 | 3.7 | 1.4 | 33.8 | 7.9 | 0.0 | 27.8 | 16.7 |
| 3 | 8.2 | 6.1 | 8.0 | 4.0 | 0.0 | | 4.1 | | | |

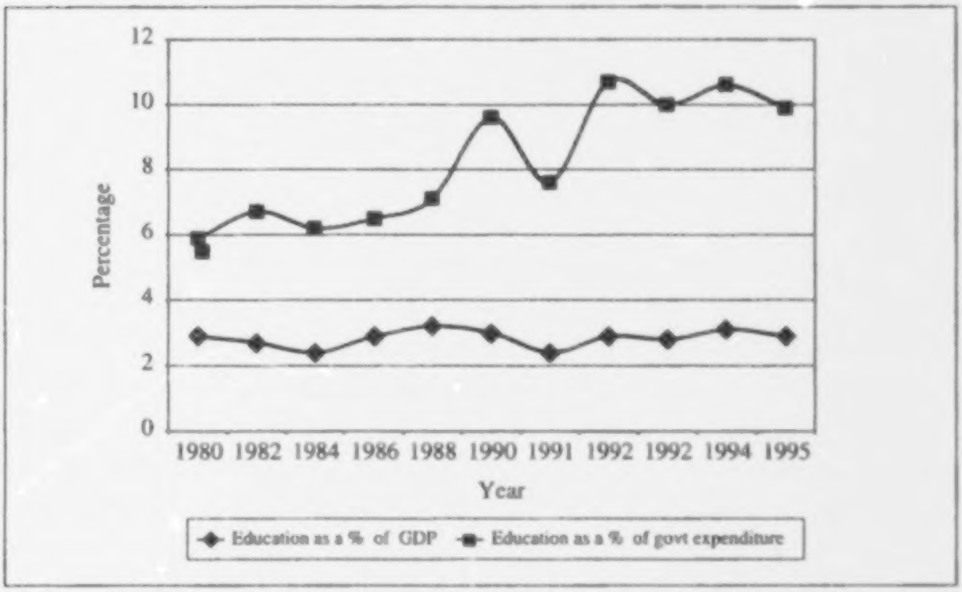
Repetition averages between 2.6 per cent in Type 1AB schools and as much as 8 per cent in Type 3 schools in primary grades. At secondary level, repetition reduces until Grade 11, where it reaches around 35 per cent. Repetition in Grade 13 reaches similar levels. From *Table 7.8* it is clear that repetition is a substantial source of internal inefficiency at primary in Type 2 and 3 schools, but is much less of a problem at secondary level, except at public examination points. Repetition at Grades 11 and 13 adds substantial numbers to total enrolment.

Drop-out rates are thought to average about 4 per cent across government schools up to Grade 9. Available data suggest that they average about 1.6 per cent at primary and 6 per cent between Grades 6 and 10. Rates of drop-out are highest in the Northern Provinces. It has been estimated that in most of the country 95 per cent of those enrolled in Grade 1 reach Grade 5. No reliable data exist of drop-out that adequately controls for school transfer and could provide a more detailed picture of where drop-out rates were highest.

## 3. Financing of education

Public educational expenditure in Sri Lanka has fluctuated over the past 15 years within a fairly narrow range. The proportion of GDP and the share of total government expenditure is as shown below. As a proportion of GDP the amounts have fluctuated around 3 per cent; as a proportion of government expenditure the amounts appear to have been increasing to around 10 per cent by 1995. Some of the fluctuations relate to the volume of external assistance, which in some periods has contributed significantly to total government expenditure. When spending per pupil is computed at constant prices, it becomes clear that real growth in educational investment per pupil has been modest and appears to have been about 30 per cent since 1980 (ADB, 1997). *Chart 7.1* shows this.

Chart 7.1 Expenditure on education as a percentage of GDP and of total government expenditure, 1980-1995



*Source:* Staff appraisal report for a teacher education and teacher deployment project: Democratic Socialist Republic of Sri Lanka. 1996. Population and Human Resources Division, South Asia Region, World Bank, Washington D.C.

Currently it is estimated that about 47 per cent of total educational expenditure is on schools, somewhat less than 4 per cent on teacher training, and about 8.5 per cent on the examination board. The rest is allocated to higher education and administration. Within the total for schools, between 75 per cent and 85 per cent of total expenditure is allocated to salaries, the lower range being found in Type 1AB schools and the higher in Type 3 (ADB, 1997).

Historically, Sri Lanka allocated small proportions of educational expenditure to higher education. Typically, these have been between 0.45 per cent and 0.60 per cent of GNP and between 16 and 21 per cent of total public expenditure on education from 1980 to 1993. Allocations to the University Grants Commission, which funds higher education, have been increasing since then. About 94 per cent of all higher education costs are publicly funded, with less than 3 per cent recovered from fees from students. The underlying point here is that higher education has only recently been absorbing more than about 20 per cent of total public education expenditure, leaving most investment at school level.

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The school system is financed from several sources. The main provision of funds is from central government through the line ministries and the Finance Commission. Together these account for the bulk of all spending. Provincial governments have access to additional funds over and above those they administer from central government to pay teachers' salaries, etc. However, five of the eight provinces allocate no additional sums for education. The allocations of the remaining provinces vary erratically (ADB, 1997).

In most schools, over 90 per cent of school income is government financed. In Type 2 and 3 schools the amounts exceed 97 per cent, making the school system fully financed publicly in terms of school expenditures. Household expenditure on education, which is in addition to public expenditure, can be derived from the 1991 Income and Expenditure Survey. From this it appears that household expenditure is comparable to the average per-pupil cost. Within this expenditure the largest amounts are associated with uniforms (38 per cent), stationery (18 per cent) and private tuition (14 per cent). These averages conceal the fact that some households will have much higher outlays. The uniform and stationery costs are additional to the public subsidy costs.

External assistance accounted for about 30 per cent of expenditure on education under the Public Investment Programme between 1990 and 1994. The bulk of this was development expenditure for capital works and equipment. Recent large projects include Vocational Training (World Bank), General Education 1 and 2 (World Bank), Teacher Education and Teacher Development (World Bank), Secondary Education Development Project (ADB), Teacher Education (GTZ), Distance Education (Sida), Primary Education Planning Project (DFID), Teacher Training Facilities (JICA), Teacher In-Service (UNICEF). Sida has also funded the Primary School Development Project and the Plantation Sector Education Development Programme.

Additional contributions are made to school budgets by facilities fees levied on pupils according to guidelines which allow discretion in payment for those unable to pay. The nominal facilities fees are around 7 Rps for primary and 14 Rps for secondary in Type 1AB schools and less in the other types of school. The amounts actually collected per pupil in different types of school are shown in *Table 7.9*. This analysis was conducted on the collection of facilities fees based on 1997 data from schools selected from the national database to represent the main school types.

Table 7.9 Facilities fees – income per pupil, Rps, 1997

| School type | Average nominal fee primary | Average nominal fee secondary | Amount collected at primary/pupil | Amount collected at secondary/ pupil | School Development Fund Income/pupil |
|---|---|---|---|---|---|
| 1AB | 7.4 | 13.7 | 16.5 | 36.4 | 158.3 |
| 1C | 4.6 | 6.0 | 7.9 | 8.8 | 24.3 |
| 2 | 3.3 | 3.8 | 4.8 | 4.6 | 5.0 |
| 3 | 1.9 | 0.6 | 3.1 | 2.4 | 3.0 |

Type 2 and 3 schools therefore collect far less than type 1AB schools by a factor of 4 at primary level and 9 at secondary. Moreover, though facilities fees are collected in most Type 1AB schools, 44 per cent of Type 2 and 72 per cent of Type 3 schools appear to collect none at all. Estimates suggest that only about 20 per cent of primary and secondary schools levy fees in excess of 20 Rps per annum. School development societies and parent-teacher associations make substantial contributions in Type 1 schools. They collect about 160, 25, 5, 3 Rps per child on average in Types 1AB, 1C, 2 and 3 schools respectively. In addition to the above, old students associations contribute about 16 Rps per child in Type 1AB schools and little or nothing in other schools. Overall, fees and contributions account for about 5 per cent of total school income.

The largest amounts of school-fund expenditures are allocated to sports and books in Type 1AB schools (*Table 7.10*). Testing seems to absorb disproportionate amounts of expenditures in other school types. Many Type 2 and 3 schools spend nothing in several of the categories, notably maintenance. Some teachers' salaries are subsidized from school expenditure, but these are additional teachers mostly in Type 1AB schools.

Table 7.10 Expenditure from school funds per pupil, Rps, 1997

| School type | Teachers' salaries | Books | Sports | Stationery | Repairs | Tests | Other items |
|---|---|---|---|---|---|---|---|
| 1AB | 2.42 | 4.07 | 12.8 | 2.17 | 2.68 | 2.37 | 10.55 |
| 1C | 0.74 | 0.67 | 0.65 | 0.54 | 0.28 | 1.31 | 3.26 |
| 2 | 0.13 | 0.26 | 0.16 | 0.12 | 0.10 | 0.30 | 0.60 |
| 3 | 0.06 | 0.06 | 0.07 | 0.05 | 0.02 | 0.13 | 0.17 |

There is evidence that demand for high-quality schooling in Sri Lanka is strong and that households are willing to pay for participation. This demand is greatest amongst high-income households with educated parents. However, it is argued that attempts to substitute household expenditure for government expenditure through increasing fees or reducing subsidies will be detrimental to household welfare in general, since they will have the greatest impact on the poor. The only viable option would be systems targeted on households above a certain income threshold and this might prove difficult to administer (Aturupane, 1997).

## 4. Costs per teacher and per pupil

The sample data allow comparisons to be made on costs between primary and secondary levels, with some constraints. Since most of the public costs in schools are in teachers' salaries, only these costs are considered below. The schools in the sample either have only primary grades or have both primary and secondary. A very small number only have secondary grades and are not large enough as a group to treat separately. Salary costs between primary and secondary grades are apportioned by the number of teaching periods teachers claim to teach at different levels in school census returns. There is no other method of estimating this in the data currently available.

The average annual salary costs per teacher in different types of schools appear to be as shown in *Table 7.11*.

Table 7.11 Average salary costs per teacher by school type, Rps, 1997

| School type | Average primary teacher's salary | Average secondary teacher's salary | Overall average teacher's salary |
|---|---|---|---|
| 1AB | 58,070 | 64,660 | 63,260 |
| 1C | 52,860 | 58,260 | 56,570 |
| 2 | 49,980 | 54,580 | 52,860 |
| 3 | 50,800 | 53,620 | 51,360 |

This table shows that average salary costs per teacher vary by about 16 per cent at primary and 21 per cent at secondary by school type. Type 1AB schools are more costly in average salaries per teacher than Type 2 and 3 schools. The underlying reason is that, as noted above, teachers are paid on the basis of qualification rather than the level at which they teach. Graduate teachers are paid more than those with certificates and diplomas and are found teaching mainly in the secondary grades in Type 1 and 2 schools. Difficult posting allowances have been paid to teachers in rural and remote schools which are disproportionately Type 3 and would have increased their salary costs by 10-15 per cent. Teachers in Type 1 schools are more senior, since these schools tend to be more desirable postings and teacher turnover is likely to be lower than in Type 3 schools, which almost certainly have younger teachers.

It is possible to separate out those schools in the data set which only have primary grades from those with significant numbers of secondary pupils (100 or more) to estimate salary costs in separate primary schools. All these schools are Type 3 schools. When this is done the average cost of primary teachers' salaries is 52,950 Rps. There are 20 schools in the sample which only have secondary enrolments from Grade 6. All are Types 1 or 2. In these schools, teachers' salary costs average 62,800 Rps/teacher. The small difference in average salary costs between primary and secondary is striking.

Salary costs per teacher in all schools with secondary enrolment vary by school size, as shown in *Table 7.12*. Perhaps surprisingly, the larger the enrolment in secondary grades the greater is the average salary cost at this level. This is also true for average primary teachers' salaries. As noted above, larger schools (which tend to be Type 1) are much more attractive postings for teachers, tend to have fewer unfilled vacancies, and retain teachers who have higher qualifications and acquire more seniority. This is the probable explanation why average salary costs are higher in larger schools.

Table 7.12 Average salary costs per teacher by school size and pupil/teacher ratios for all schools with secondary enrolment, Rps, 1997

| Enrolments at secondary | Average primary teacher's salary | Average secondary teacher's salary | Overall average teacher's salary |
|---|---|---|---|
| All schools | 51,010 | 56,870 | 50,100 |
| Less than 100 | 47,180 | 54,640 | 45,970 |
| 101-500 | 50,650 | 55,570 | 49,420 |
| 501-1000 | 55,930 | 60,970 | 55,500 |
| More than 1000 | 57,300 | 63,720 | 56,900 |

These patterns of relatively small cost variations in average salaries per teacher can be contrasted with those for salary costs of teachers per pupil (*Table 7.13*). In all schools, teachers' salary costs represent the great majority of public costs per pupil. They are therefore a good proxy for overall public unit costs.

Table 7.13 Average salary costs per pupil per year by type of school, Rps, 1997

| School type | Salary costs per pupil primary | Salary costs per pupil secondary | Overall salary costs per pupil |
|---|---|---|---|
| 1AB | 1,730 | 3,510 | 3,030 |
| 1C | 1,820 | 3,370 | 2,710 |
| 2 | 2,390 | 3,630 | 2,950 |
| 3 | 3,350 | | 3,350 |

Salary costs per pupil are greatest in Type 2 and 3 schools at primary. At secondary, the pattern is not simple, though Type 2 schools have the highest costs (in principle Type 3 schools have no secondary pupils). The average pupil/teacher ratios across different types of schools at primary level vary from 34 (Type 1AB) to 23 (Type 3) (*Table 7.5*). At secondary level, the average pupil/teacher ratio is constant between school types at about 20:1. The dispersion of values around the mean is significantly larger for Type 2 and 3 schools than for Type 1 (*Table 7.6*).

When salary costs per pupil are examined by the size of secondary enrolments, the results (*Table 7.14*) show that, as expected, schools with smaller enrolments are generally the most expensive. This is consistent with their lower pupil/teacher ratios.

Table 7.14 Average salary costs per pupil by school size for schools with secondary enrolments, Rps, 1997

| Enrolments at secondary | Average salary costs per pupil primary | Average salary costs per pupil secondary | Overall average salary costs per pupil | Pupil/teacher ratios at primary | Pupil/teacher ratios at secondary | Overall pupil/teacher ratios |
|---|---|---|---|---|---|---|
| All schools | 2,270 | 3,660 | 2,950 | 29 | 20 | 23 |
| Less than 100 | 3,220 | 5,110 | 3,770 | 21 | 15 | 20 |
| 101-500 | 2,040 | 3,220 | 2,700 | 31 | 20 | 23 |
| 501-1000 | 1,630 | 2,990 | 2,540 | 37 | 23 | 27 |
| More than 1000 | 1,500 | 3,060 | 2,650 | 32 | 22 | 25 |

*Chart 7.2* shows how costs decline with secondary enrolment (excluding extreme outlying cases) in Type 1AB and C schools. *Chart 7.3* shows the same for Type 2 schools.

Chart 7.2 Salary costs per secondary pupil by enrolment at secondary Type 1 schools, 1997

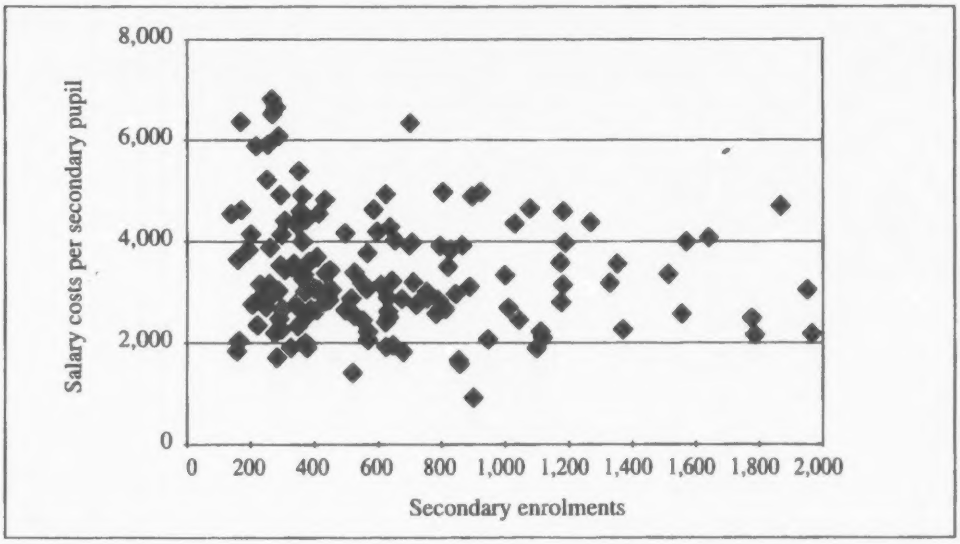


Chart 7.3 Salary costs per pupil by secondary enrolment at Type 2 schools, 1997

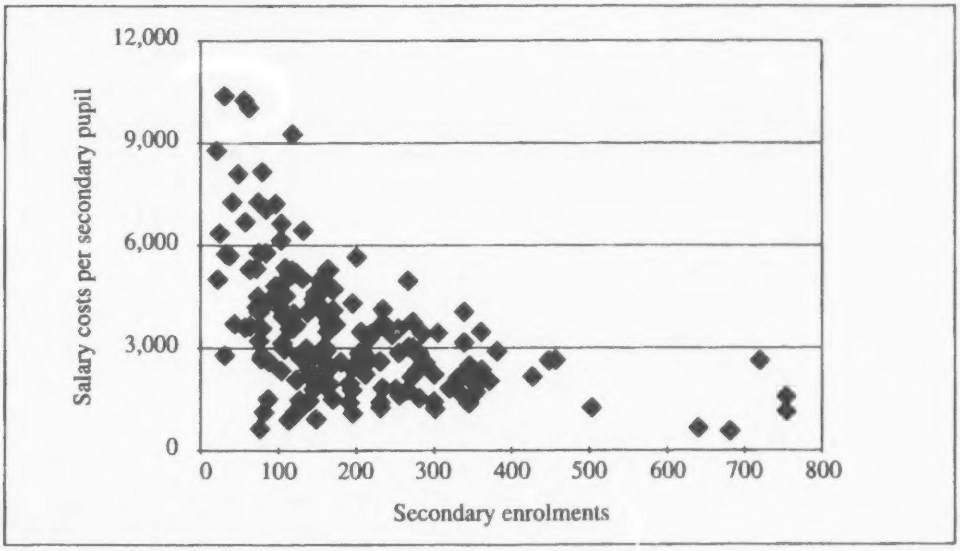
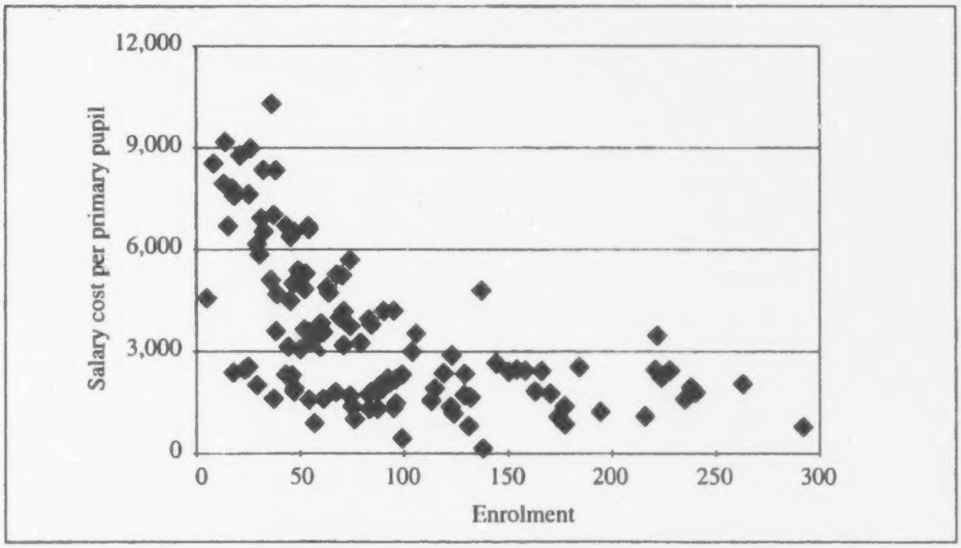


*Chart 7.2* shows that in Type 1 schools salary costs per secondary pupil stabilize above an enrolment of about 500. Above this level, reductions in average cost are very gradual. *Chart 7.3* shows that in Type 2 schools the enrolment level above which salary costs stablize is about 400.

*Chart 7.4* shows a similar exercise for primary schools using data on schools with only primary grades and no secondary enrolments (excluding outliers). Primary schools with enrolments of more than about 150 have salary costs per pupil which can average around 2,000 Rps. Above this size, cost per pupil falls very slowly.

Chart 7.4 Salary costs per primary pupil schools with only primary by enrolment, 1997



None of these analyses take into account non-salary costs. In primary schools these are less than 5 per cent of the total recurrent cost and in secondary less than 10 per cent. Including these would therefore not dramatically alter the picture. The position may look different in relation to capital costs, but it is beyond the scope of this analysis to explore these. Capital costs are in any case amortized over a long period – the lifetime of buildings – so their impact on an annual basis should be small.

The problems associated with small schools are long standing. They arise as a result of the history of the growth of the school system, variations in the density of the population, and in some cases the decision to maintain two language streams. Nationally, the proportion of all schools with less than 50, 100 and 200 pupils was 9 per cent, 13 per cent and 20 per cent respectively in 1991. At secondary level, 25 per cent of schools have less than 100 secondary pupils and 22 per cent less than 200 (Ministry of Education and Higher Education, 1992). In the sample of schools analyzed, fully 32 per cent of the schools with primary have enrolments below 100 and a further 27 per cent below 200. Amongst Type 3 schools 75 per cent have less than 100 pupils.

It is clear that there are compelling reasons for the continuation of some small schools located in low population-density areas. However, it seems implausible that this is the case for all the small schools identified. Salary costs per pupil in primary schools with enrolments below 100 are double those in larger schools (*Table 7.15*). Where secondary enrolments are less than 100, salary costs are about 70 per cent greater than in average-sized secondary schools.

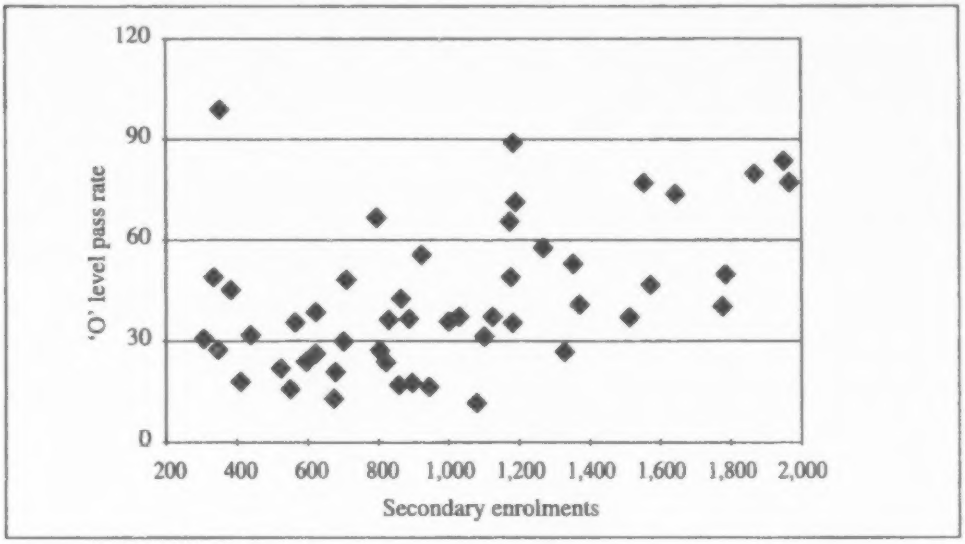
Appropriate school mapping is needed to identify where average school size might be increased without an adverse effect on access and quality. If half of the small schools could be merged or consolidated with others without incurring substantial additional costs, substantial recurrent savings could be released. Some of the savings could be allocated to improved conditions for teachers (e.g. subsidized housing) and greater investment in learning resources. Alternatively, more widespread use of multi-grade teaching could bring down the salary costs of small schools to nearer average cost levels.

## 5. Performance, enrolments and pupil/teacher ratios

The school data can also be analyzed in terms of pass rates at 'O' and 'A' level. In this analysis, school types were kept separate and the simple indicator of 'O' and 'A' level pass rates was plotted against secondary enrolments and the pupil/teacher ratio. The analysis indicated that there was no direct association of secondary enrolments with 'O' and 'A' level pass rates, except in Type 1AB schools at 'O' level. In these, larger schools do seem to have higher pass rates (see *Chart 7.5*).

Type 1AB schools are selective. Characteristically they teach science to 'A' level, and have more qualified staff than other schools. Their overall pass rates at 'O' level are high and average 43 per cent. Type 1C schools are less selective and average 23 per cent pass rates. Type 2 schools average only 21 per cent pass rate at 'O' level. At these lower pass rates, it is clear that small schools with enrolments at secondary (Grades 6-11) of less than 300 can achieve pass rates of over 30 per cent, as do some small Type 2 schools with enrolments of less than 200.

Chart 7.5 'O' level pass rate by secondary enrolments Type 1AB, 1997



At 'A' level, 53 per cent of 'A' level pupils pass in Type 1AB schools and 66 per cent in Type 1C. Since Type 1C schools are less selective, this result may seem surprising. It arises partly because there are many more Type 1C schools with small 'A' level enrolments (average 57 students in Type 1C versus 281 students in Type 1AB). It is likely that only those with the best chance of passing are entered into the Type 1C schools. It may be that pass rates in non-science subjects, in which Type 1C schools specialize, are also higher. In both cases, high scoring schools can be found with very small 'A' level enrolments.

The data were processed to associate pass rates with pupil/teacher ratios (PTRs) at secondary. PTRs are a reasonable proxy for costs per pupil. No clear relationships were apparent. Some Type 1AB schools with PTRs between about 17:1 and 35:1 achieved 'O' level pass rates greater than 50 per cent. In Type 1C schools, the range was from about 15:1 to 30:1 for schools scoring more than 30 per cent pass. In Type 2 schools, similar pass rates were achieved in schools with PTRs below 10 and up to 30. At 'A' level a similar lack of association appeared, with PTRs in type 1AB schools mostly falling between 20:1 and 35:1 and, in Type 1C, between 10:1 and 30:1.

These results do not eliminate the possibility of relationships between achievement, enrolments and PTRs. With the data available it is not possible to analyze this further in ways that would control for the most obvious possible confounding factors. However, it is clear that large enrolments and higher PTRs do not preclude relatively high pass rates within each type of school.

## 6. Some demographic considerations

Enrolment growth in Sri Lanka depends on the underlying rate of population growth, since enrolment ratios are high in primary and secondary schools. Any projections of future costs must take these into account. Unlike many African countries, the size of the school-age group in Sri Lanka is shrinking, since a demographic transition to low growth has been happening since the 1970s.

The present population of Sri Lanka is 18.1 million. The number of 0-14 year-olds was projected to grow by 1.2 per cent until the year 2000. Longer-term estimates show a decline in the number of 10-15 year-olds. The size of the school-age group is therefore beginning to shrink. This will reduce the demand for primary and secondary school places. Though drop-out rates may fall, slowing the decline in enrolments, they are currently at fairly low levels.

A recent projection (Aturupane and Abeygunewardena, 1997) illustrates the likely effects on enrolments at different grade levels (*Table 7.15*).

Table 7.15 Projected enrolments by Grade, 1996-2000, and annual growth rates

| Year | 1996 | 2000 | 2005 | Growth 1996-2000 Annual % | Growth 2000-2005 Annual % |
|---|---|---|---|---|---|
| Grade | | | | | |
| 1 | 350,182 | 331,659 | 309,880 | -1.06 | -1.09 |
| 5 | 365,371 | 333,906 | 311,906 | -1.72 | -1.10 |
| Sub-total 1-5 | 1,818,433 | 1,701,727 | 1,589,882 | -1.28 | -1.10 |
| 6 | 368,120 | 322,883 | 301,180 | -2.46 | -1.12 |
| 11 | 434,535 | 447,021 | 384,345 | 0.57 | -2.34 |
| Sub-total 6-11 | 2,103,775 | 1,930,421 | 1,730,742 | -1.65 | -1.72 |
| Sub-total 12-13 | 226,621 | 238,417 | 250,648 | 1.04 | 0.86 |
| Grand total | 4,148,826 | 3,870,566 | 3,571,273 | -1.34 | -1.29 |

*Source:* Aturupane and Abeygunewardena, 1997.

*Table 7.16* shows primary enrolments shrinking by 230,000 over a ten-year period (13 per cent) and those at secondary (Grades 6-11) by 370,000 or over 20 per cent. It is only at Grades 12 and 13 that some enrolment growth is anticipated. This is projected as an increase of 24,000 (11 per cent). Thus, overall, the education system is likely to lose about 576,000 places out of a 1996 total of 4.1 million (14 per cent). The opportunities this creates are clear, since they will be reflected either in overall cost saving or, preferably, in increased unit costs directed towards improving retention and school quality. Most of the benefit will be experienced at secondary level in Grades 6-11.

## 7. Changes in the budgeting system

In common with many other countries, the basis for funding schools in the past has relied largely on historic budgeting, with incremental growth reflecting the availability of funds and the short-term political priorities. This system was not sensitive to changing patterns of demand and tended to reinforce historic inequities between provinces, districts and schools. The advent of provincial devolution added a further stress to historic allocation patterns, since it encouraged the development of a more rational basis for the allocation of funds, which recognized the need for more efficiency and equity.

It is suggested that Sri Lanka should move towards a norm-based system of funding, which would reduce the variance in unit costs between schools and maintain differences by school type, which could be defended with reference to their different enrolment patterns (ADB, 1997; World Bank, 1997, Component 7:1). The system which is being developed is therefore formula based and depends on enrolments. Major categories of expenditure are identified and associated with enrolment to generate an overall unit cost which could provide the fundamental basis for the allocation of recurrent funds. Thus:

Unit costs = $(T+NT+Li+La+Ad+M+TX+U+Sc+Sp+Ma+Mi)/E$
where:
T = Teachers' salaries NT = Non-teaching salaries
Li = Libraries La = Laboratories
Ad = Admin. salaries M = Teaching and learning materials
TX = Cost of textbooks U = Cost of uniform subsidies
Sc = Scholarships Sp = Sports
Ma = Maintenance Mi = Miscellaneous.
E = Enrolments

Funding grants would then be based on the unit cost multiplied by the enrolment. Norms could be established for different types of school and different types of expenditure. Thus, one possible version of this approach currently projected would allocate funding based on 13 Rps/pupil for administrative support, 228 Rps/pupil for supervision services, and 37 Rps/pupil for teacher education in primary and secondary schools. It would allocate different amounts for textbooks at primary and secondary (76 Rps/211 Rps), uniforms (93 Rps/138 Rps) and learning materials (100 Rps/200 Rps), reflecting the different needs for these. The norms could be tuned to reflect judgements of what is required.

Systems of this kind have to be sensitive to the realities of current patterns of distribution of costs between schools. Teachers' salaries have to be paid in the short term, even if the distribution of teachers exceeds norms established for pupil/teacher ratios. Overall, however, this kind of system represents a considerable improvement on historic budgeting, since it is in principle more equitable and should encourage a more efficient distribution of expenditure if coupled with action to reduce disparities in pupil/teacher ratios, etc. It does need to be coupled to safeguards that ensure that small schools with diseconomies of scale are not underfunded. It remains to be seen to what extent these procedures will be operationalized.

## 8. Proposed reforms

Sri Lanka is in the process of transforming the long-standing system of school organization, with its many varieties of schools covering different grade ranges into a more conventional pattern with only two types of school. These are intended to be Grade 1-9 Junior Schools and Grade 10-13 Senior Schools. This process is accompanying the introduction of norm-based financial allocations. It is not yet clear what the financial implications of school reorganization are likely to be or what problems will be encountered in implementing these reforms. Some observations seem appropriate.

First, it ought to be the case that costs per pupil in Junior Schools should approximate those in existing Grade 1-5 and Grade 1-8 schools. If, as a result of rationalization of small teaching groups in Grades 6-8, high pupil/teacher ratios in some schools are reduced, then costs should fall and efficiency increase. There is a risk that extending some Type 3 schools up to Grade 9 will increase costs if small entry cohorts are simply continued to higher grades without the use of multi-grade teaching groups. It should be remembered that average intakes in these schools are no more than 12 at primary and 15-20 at secondary.

Second, it remains unclear how the transition from junior to senior school will be managed. Grade 9 is not a formal selection point in the current system. It has been suggested that junior school certificates will be available to those who leave school at the end of this cycle, but that pupils will retain the right to continue in senior secondary to 'O' level (Grade 11). The possible impact of this on increased repetition in Grade 9 (to acquire better grades of certificates) and on transition rates into 'O' level is uncharted.

Third, senior secondary schools will have smaller enrolments than schools with senior secondary classes under the existing system, if the same number of schools remain, since they will only contain four grades. 'A' level enrolments in Type 1 schools in the sample average 283 in Type 1AB, and 30 in Type 1C, with an overall average of 126. In these schools, Grade 9 and 10 enrolments average 366 and 162. Thus, though many Type 1AB schools have existing enrolments large enough to create viable senior secondary schools with enrolments above 600, Type IC schools do not. They would need to acquire large numbers of pupils from former Type 2 schools to achieve viability. In the sample, which is not fully representative of all schools, redistributing all the secondary pupils in Type 2 schools to Type 1 schools would provide an additional 70 pupils per school. There are 64,500 pupils in the sample in Grades 10-13 enrolled in about 330 schools, which include 56 Type 1AB and 90 Type 1C schools. If the average size of a senior secondary school were to be 1,200, only about 50 such schools would be needed for current enrolments compared to the 146 in the sample. It is unclear whether the implications of the reduction in geographical access that this might represent have been adequately considered. In the absence of a detailed plan it is also unknown what the cost implications will be.

## 9. Some projections

The education system in Sri Lanka has been modelled using an enrolment-driven simulation to chart the behaviour of costs under different scenarios. The starting point here is to assume that key parameters remain as they are currently configured. Specifically, initial enrolments, repetition, promotion and drop-out rates by grade have been set at the best estimates available. So also have pupil/teacher ratios and overall unit costs. The model does not attempt to treat school types separately. To do so would introduce a high level of complexity against a backdrop of policy which seeks to change the existing pattern of school organization. It is therefore only practicable to generate an aggregate picture, without entering into a major exercise which captures policy ambitions which are yet to be detailed.

With this in mind the simulation has been run to establish how costs may change over the next 20 years, assuming current demographic projections remain valid. The first results show how the total costs of primary (Grade 1-5) and secondary (Grades 6-13) are likely to change in relation to base-year costs. They also project the demand for new teachers in relation to a baseline which includes those who are untrained. *Charts 7.6* and *7.7* show this.

Chart 7.6 Recurrent costs for primary and secondary as proportion of total base-year costs, 1996-2010

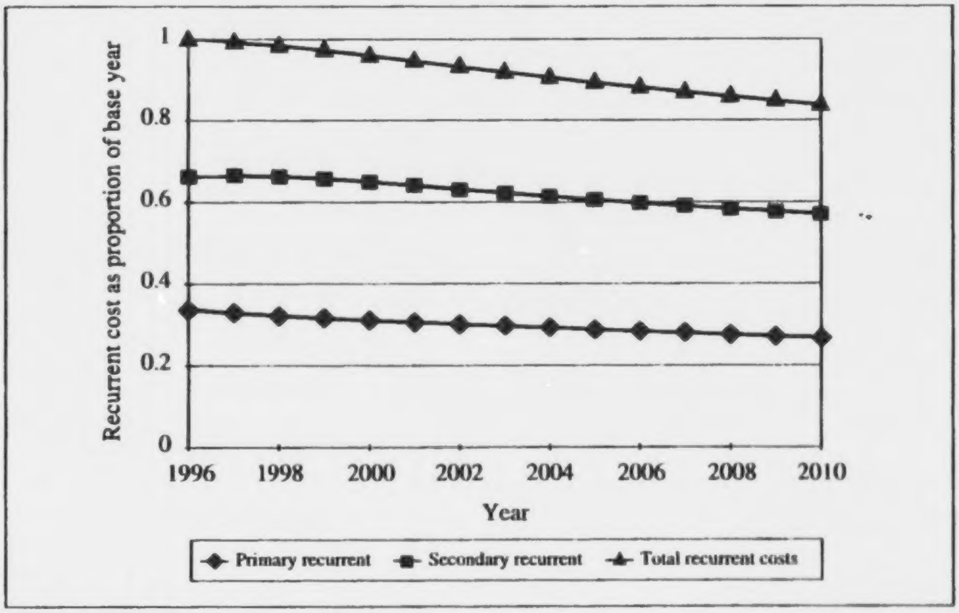
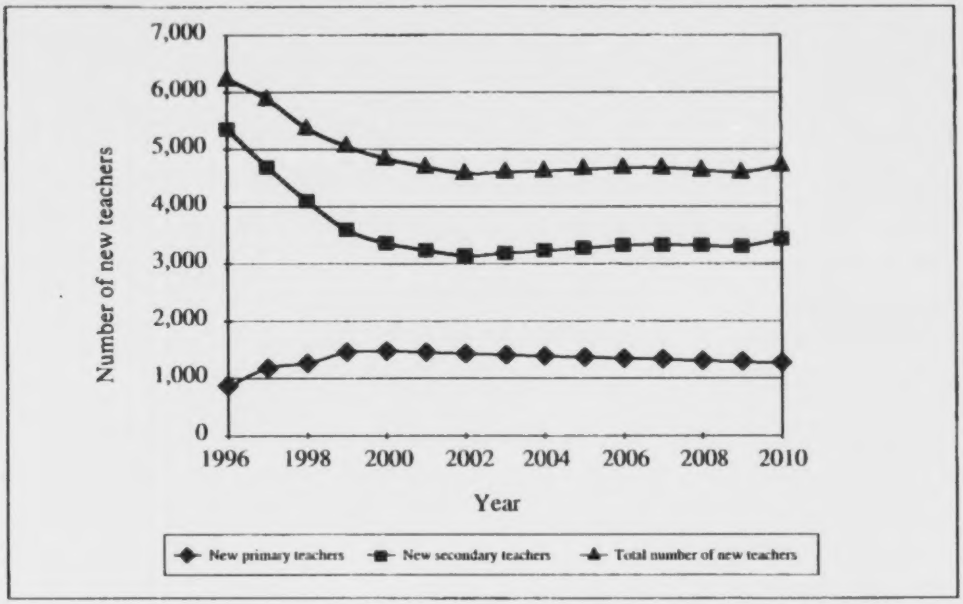


Chart 7.7 Demand for new teachers, 1996-2010



Total enrolments are projected to decline to below 3.5 million from their current level of 4.2 million. Secondary enrolments will remain greater in total than primary. The recurrent costs decline in sequence with enrolments, since all key parameters are held constant in the baseline model. Secondary takes about 66 per cent of the total recurrent cost of the school system and primary 33 per cent. Thus, unlike some countries at an earlier stage in enrolment growth, Sri Lanka continues to invest more in secondary than primary and maintain larger total enrolments in secondary grades. Total recurrent costs fall by about 15 per cent over the 15-year projection in real terms. The demand for new teachers in the baseline model peaks in the first three years and then falls as enrolments decline, reflecting the contraction in the cohort. The number of new secondary teachers needed is between three and four times the number of primary teachers (not accounting for upgrading).

This projection does not include the short-term costs of upgrading the existing cadres of untrained teachers. The upgrading of these teachers is the subject of a current donor-financed project. This upgrading should be a one-off cost (World Bank, 1996). It is therefore not included in these recurrent projections.

The assumptions of the model were changed such that repetition and drop-out are halved through Grades 1-11 and all pupils are promoted from primary Grade 5 to secondary Grade 6. These changes are consistent with government policy to increase internal efficiency and retention through organizational reform and quality improvement programmes. In this simulation, enrolments fall at about the same rate as in the first simulation. Reduced drop-out is compensated for by the increased rate of flow associated with less repetition and higher promotion rates. Recurrent costs continue to fall, but are only marginally less than in the baseline model. Teacher demand is initially greater, but falls slowly to levels similar to the baseline simulation over 10 years.

Finally, the model was used to simulate a 10 per cent increase in pupil/teacher ratios (through rationalization of small schools and excessively low pupil/teacher ratios in other schools), a 16 per cent real increase in teachers' salaries, and an increase in expenditure on teaching materials of 95 per cent over the 15-year period. The result is shown in *Charts 7.8* and *7.9*. Enrolments remain unchanged. Recurrent costs at the end of the plan period remain below existing levels at about 95 per cent of baseline costs and teacher demand falls significantly as a result of reduced pupil/teacher ratios.

Chart 7.8 Recurrent costs for primary and secondary as proportion of total base-year costs, 1996-2010

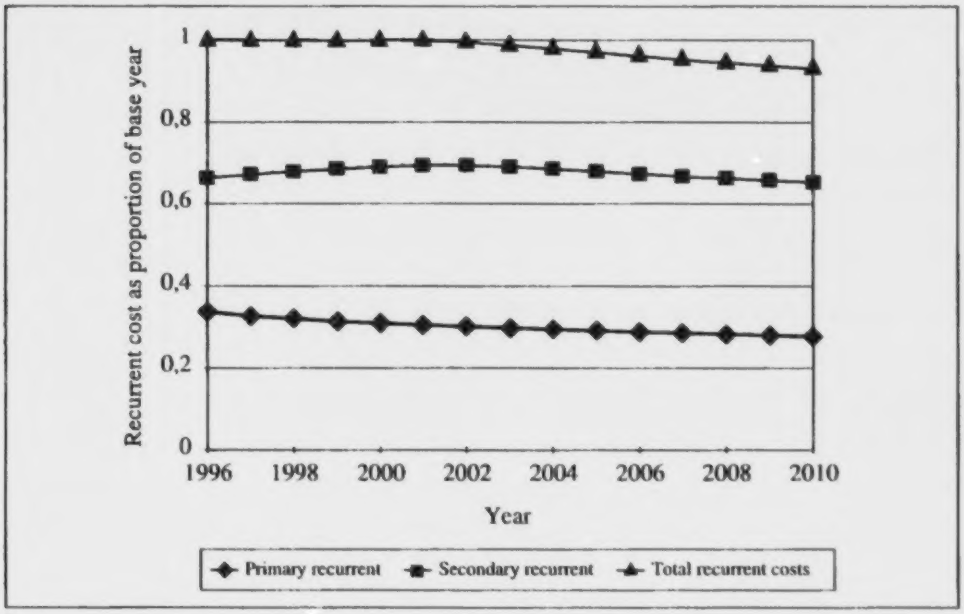
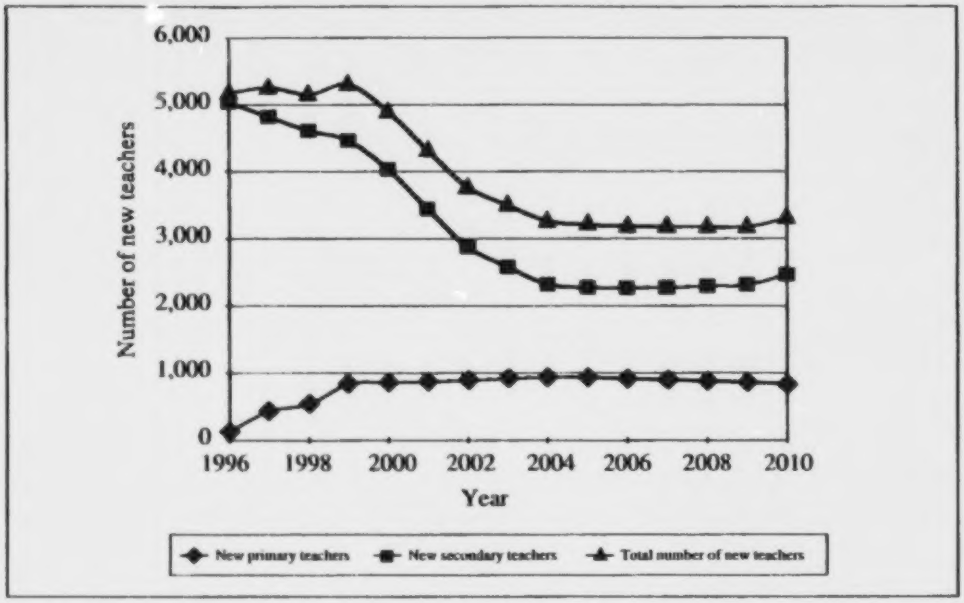


Chart 7.9 Demand for new teachers, 1996-2010



This last simulation suggests that considerable improvements in quality-related indicators (pupil/teacher ratio, teachers' salaries, increased learning materials) may be available at close to existing recurrent cost levels. If the education budget increases in real terms as a result of real increases in GDP, the scope to increase per-pupil expenditure in ways which would improve quality and result in higher levels of achievement is even greater.

The resources available to the school system will depend in part on whether the planned expansion of enrolment rates in higher education is allowed to absorb disproportionate amounts of public expenditure on education, as is planned. If higher education is not a disproportionate beneficiary of funds, then there is considerable scope to increase expenditure per pupil at school level.

Thus, it will remain the case that secondary schools absorb the larger part of school-level expenditure on education and the proportion allocated is likely to rise to about 70 per cent of all recurrent expenditure on schools. This is a consequence of the larger grade span of secondary (6-13 as opposed to 1-5 for primary), and the high enrolment rates through to Grade 11. It is not primarily the result of high unit-cost ratios between primary and secondary, since in Sri Lanka these are relatively low. Most significant for the affordability of the secondary school system with near universal enrolment levels at least to Grade 9, is the decline in the size of the age cohort as a result of demographic transition.

## 10. Some emerging issues

There are several issues that this analysis identifies as problematic.

First, the majority of secondary pupils in Sri Lanka are taught in schools which have both primary and secondary grades with some overlap of teaching between the two. This should mean that secondary unit costs are lower than they would be if primary and secondary schools were separated. In principle, it allows shared use of facilities and teachers and should result in more viable teaching group sizes. Problems arise related to small school size and to enrolment in secondary grades in Type 3 schools. The analysis shows that small primary and secondary enrolments are costly and that they have a surprisingly high incidence. Consolidation into larger schools and/or more use of multi-grade teaching could result in considerable cost savings and opportunities to invest in quality improvements, accepting that this is not possible in relation to all small schools.

Second, the analysis has not probed non-salary expenditure at school level. This is partly because it is of relatively small magnitude. The secondary data that exist draw attention to the fact that about 75 per cent of non-salary public expenditure is allocated to uniform subsidies and textbooks, with a further 10 per cent to sports equipment and activities. On average, between 5 and 10 per cent is spent on learning materials and library resources. The existence of a common curriculum, along with an effective national textbook subsidy scheme, reduces the costs of providing learning material and simplifies its production and distribution. This means that, despite the low levels of non-salary recurrent expenditure, basic textbooks, etc., are available in most schools. However, only 11 per cent of schools have libraries housed in permanent buildings. It is widely recognised that expenditure for learning materials is inadequate to meet needs at both primary and secondary level.

Some schools ameliorate deficiencies in the non-salary budget by using income from facilities fees and from school development society activities and contributions. The amounts raised per pupil are modest in most schools and in a substantial number of schools no money is raised. The tradition of free education is generally thought to preclude the option of significant increases in facilities fees, which are in any case levied on a discretionary basis. To make a significant difference to school income they would in any case have to be raised to levels likely to be politically intolerable. The possible exception to this is at the upper end of the secondary school and at 'A' level, where book subsidies are already restricted to basic texts, where demand for schooling is strong, as evidenced by high rates of repetition, and where expenditure on private tuition is known to be substantial. The latter, therefore, provides evidence of disposable income available to support educational costs.

Third, repetition in primary grades and at public examination points remains a source of internal inefficiency and increases total costs. The relationship between repetition and drop-out has not been clearly established and is very complex to analyze since school transfers are common. It seems likely that early repetition is associated with later drop-out. If primary repetition could be decreased, especially in Type 3 schools, significant resources would be released. High rates of repetition around public examinations is probably inevitable, but can be controlled by limiting the number of resits and/or age of candidates allowed to resit at public cost.

Fourth, this paper has not dwelt on distributional questions. These are important to consider at two levels: (a) the range of variation in key school parameters, e.g. the pupil/teacher ratio, is wide. In the sample, PTRs range from 3 to 140 in Type 2 and 3 schools, suggesting that there is substantial scope to improve very low ratios and a priority to reduce excessively high ones. Depending on how this is achieved it might be possible to reduce unit costs whilst improving the quality of provision; (b) the distribution of investment in resources at school level may be problematic. Class sizes in higher grades tend to be smaller and it is likely that disproportionate amounts of school expenditure are directed towards the needs of children in higher grades. If so, this may disadvantage both primary and lower-secondary pupils.

## Conclusion

The purpose of this analysis was to profile the Sri Lanka school system and its financing in ways which would draw attention to the special features that have made it possible to achieve and sustain high levels of participation at secondary-school level. The data highlight several characteristics which are significant. These include the low levels of costs per pupil relative to GDP; the small ratio of teacher salary costs between schools and between primary and secondary levels; the focus on investment in schools rather than higher education; and the benefits of demographic transition. It is useful to summarize aspects of each of these in turn.

First, the costs per pupil of providing primary and secondary education in Sri Lanka are low relative to GDP per capita. Analysis of the available data suggests that overall costs per pupil range from 0.09 per cent of GDP per capita in Type 3 schools to 0.05 per cent of GDP per capita in Type 1 schools. Teachers' salary costs per pupil in the sample schools are about 0.06 per cent GDP per capita at primary and 0.1 per cent of GDP per capita at secondary level. These levels are low by the standards of many other developing countries. They also imply that it has been possible to constrain the growth in teachers' salaries to a relatively low proportion of GNP/capita over time.

Second, the ratio between primary and secondary costs per pupil is small by comparison with many other poor countries. Even when non-salary costs are taken into account, it is likely this ratio is less than 1:2. Taken together this makes high rates of secondary participation affordable at sustainable (and relatively low) levels of educational investment as a proportion of GDP and of public expenditure. Sri Lanka is unusual in that the teacher cadre is not strongly differentiated into primary and secondary teachers. As a consequence, salary costs per teacher between primary and secondary schools do not vary widely and this reduces the range in overall unit costs between the levels. It also means that in principle teachers can be deployed more flexibly and efficiently than would be the case if they could only teach in primary or secondary schools.

Third, higher education has not until recently begun to absorb large proportions of public expenditure on education. This has meant that investment could be focused on the school system as participation grew to high levels. It may be that historically schools with secondary-level grades benefited disproportionately from this, since they have almost certainly received greater subsidies and capital investment than have primary schools.

Fourth, the demographic transition to low growth has undoubtedly meant that high enrolment rates at secondary have been more affordable than they would otherwise be. The shrinkage in overall enrolments is continuing and will be greatest over the secondary grades. This should allow full enrolment through secondary grades without significant increases in cost, providing repetition is reduced and measures are taken to improve quality and retention.

Fifth, on balance, the unusual organization of Sri Lankan schools, where secondary grades are often integrated in one school with primary grades, has contributed to the ability of the system to sustain high secondary enrolment rates at affordable levels of cost.

# Chapter VIII

# Secondary school financing in China: the new economics of schooling

*Keith M. Lewin with Qu Heng Chang, Zeng Xiao Dong, Wang Zhan Rei, Wu Hua and Wang Libing*[1]

## Introduction

China formally committed itself to universalizing access to basic education with the announcement of the Nine Year Compulsory Education Law in 1986 (Lewin et al., 1994). Now, in most city areas virtually all school-age children attend primary school and enrolment rates at junior secondary are high. The underlying demographic trends are such that the number of school-age children is growing slowly as a result of the one child policy.

Since the late 1970s when China began its major economic reforms, there has been a rapid expansion in the development of secondary schools, both in terms of students' enrolment and government funding. The number of students studying in secondary schools has more than doubled since 1970 at lower-secondary level, from about 23 million to over 43 million. Because of this growth and because policy has recently favoured increasing the responsibilities of local governments for financing secondary schools, much greater proportions of the costs of secondary schools have had to be financed from non-budget income. The range of methods is varied.

There are three main reasons why the financing of secondary schools is becoming problematic.

First, growth in enrolment rates is now concentrated at secondary level. The number of new entrants to regular secondary schools expanded at an annual rate of over 5 per cent between 1990 and 1995 nationally. Some categories of enrolment grew particularly fast – specialized schools by 14 per cent, technical schools 16 per cent, teacher-training institutions 6 per cent and vocational schools 9 per cent.

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[1] Keith M. Lewin wrote the Beijing case study with Qu Heng Chang, Zeng Xiao Dong, and Wang Zhan Rei and the Wenzhou case study with Wu Hua and Wang Libing. Wu Ting, Zheng Shaoai, and Wu Jianjun acted as researchers in Wenzhou, collecting data.

Second, alongside general growth in secondary enrolments, urbanization has been occurring rapidly. It seems probable that rates of urbanization are between 5 and 10 per cent a year in China, as economic growth attracts workers into cities. Unlike in the past, workers are free to move, since residence requirements have been relaxed and the flow of labour is now largely market driven. This has the effect of increasing secondary enrolment growth in and around cities, both because of increased population and because of a preference amongst rural parents to gain access to secondary schooling in towns and cities. Many schools now accept students from outside their residential catchment areas on payment of additional fees.

Third, city schools only have a proportion of their recurrent costs paid by city and district governments. Typically, only one-half to one-third of the salary bill for secondary schools in many parts of Beijing is met from central funds. The remainder must be financed from fund-raising activities at the school level. This is necessary to pay competitive salaries sufficient to attract and retain teachers. It seems probable that enrolments are growing faster than the publicly funded elements of the budget. Economic development has proceeded at a high rate and tax revenues have not grown as fast as incomes. Periodic bouts of inflation have also adversely affected school financing and the value of teachers' salaries. There is therefore a growing gap between the ability to finance social-sector expenditure and the revenue stream. The gap is currently being met through increasing the proportion of off-budget income derived from a wide range of sources.

The problems of financing schools in China are very sensitive. There are a number of reasons for this that make data collection and analysis difficult. First, financial data are usually regarded as confidential and subject to special restrictions on access. This is especially so as local autonomy has begun to lead to growing differences in income and unit costs between areas. Second, custom and practice often means that there are significant differences between what may appear in accounts which are consistent with official guidelines, and actual incomes and expenditure. There may be many reasons for this that vary from pragmatic decisions to reallocate funds to areas of greatest need that may not be recognized in general guidelines, to subtle reinterpretation of what is and what is not permissible. Third, accounting systems are complex and easy to misinterpret in a system where there are many levels of government and a long history of ad hoc reform. Fourth, data collection and aggregation vary considerably in quality and reliability, and contain many inconsistencies that are difficult to resolve.

This chapter presents two contrasting cases which illustrate developments which are occurring in many parts of China. Beijing was chosen for the first of the case studies. This provides an insight into changes which have taken place in the capital city. Beijing is the administrative centre of China and national policy on schooling is rapidly translated into practice. It has many features in common with developments in other major metropolitan centres in China which are located in rapidly growing parts of the country with high levels of urbanization and inward migration.

The second case study was located in Wenzhou in Zhejiang Province. Wenzhou has a reputation for a range of economic reforms that constitute the 'Wenzhou Model', which has promoted local initiatives and entrepreneurial activity. It contrasts with Beijing, in that it is a much smaller centre of population, has different traditions of local government, and different patterns of economic activity centred on trading and small-scale manufacturing.

The picture that emerges cannot be representative of China as a whole. No case studies could meet this ambition. Educational development in other parts of China lags considerably behind that found in the cities (Lewin and Wang, 1994) and conditions vary enormously. Nevertheless, over 30 per cent of the population is now urbanized and a much larger number live around cities and are influenced by educational developments in the centres of population. The developments that have been taking place provide a radical point of comparison both with the past and with educational financing in other countries.

## A. Case study 1 – Beijing

The evolution of some basic indicators of schooling is shown below for Beijing, and for two districts where data were collected, i.e. Haidian and Shunyi. *Table 8.1* shows that total enrolments in Beijing at primary level have been falling. This is a consequence of demographic trends which have resulted in a decline in the size of the school-age population. This fall is occurring in most districts including Haidian, which is a fashionable district in the north-east of the city. In Shunyi, which is north-east of the city, enrolments have been rising as industry develops and there is some inward migration for employment from more rural areas further from Beijing.

At secondary level, the increases in enrolments are striking – an average of around 8 per cent at junior secondary and 12 per cent at senior secondary per year. As noted above, the main reasons for this are growth in the enrolment rate and an inward flow of students for secondary schooling into districts of the capital city. Average school size is increasing at both primary and secondary in Shunyi, but only at secondary level in Haidian.

Table 8.1 School enrolments in Beijing, 1993-1995

| | Beijing | | Haidian District | | Shunyi District | |
|---|---|---|---|---|---|---|
| Primary | Schools | Enrolments | Schools | Enrolments | Schools | Enrolments |
| 1995 | 2,867 | 1,007,301 | 164 | 105,427 | 175 | 73,773 |
| 1994 | 3,035 | 1,024,503 | 176 | 106,800 | 184 | 69,401 |
| 1993 | 3,190 | 1,022,166 | 131 | 107,369 | 191 | 63,849 |
| Annual growth % | | -0.7 | | -0.9 | | 7.5 |
| Average school size | | | | | | |
| 1995 | | 351 | | 643 | | 422 |
| 1994 | | 338 | | 607 | | 377 |
| 1993 | | 320 | | 820 | | 334 |
| Junior secondary | | | | | | |
| 1995 | 710 | 525,724 | 71 | 58,013 | 37 | 27,969 |
| 1994 | 693 | 497,174 | 64 | 53,958 | 35 | 26,576 |
| 1993 | 680 | 444,934 | 64 | 47,745 | 35 | 24,672 |
| Annual growth % | | 8.7 | | 10.2 | | 6.5 |
| Senior secondary | | | | | | |
| 1995 | | 102,522 | | 22,816 | | 4,556 |
| 1994 | | 86,584 | | 19,386 | | 3,978 |
| 1993 | | 78,261 | | 17,626 | | 4,064 |
| Annual growth % | | 14.5 | | 13.8 | | 5.9 |
| Average school size (all) | | | | | | |
| | 885 | | 1,138 | | 879 | |
| | 842 | | 1,146 | | 873 | |
| | 769 | | 1,021 | | 821 | |

Table 8.2 Primary PTRs, class size, teachers/class and teachers/non-teachers, 1995

| | Beijing | Haidian District | Shunyi District |
|---|---|---|---|
| Pupil/teacher ratio | 16.5 | 16.6 | 20.8 |
| Average class size | 33.4 | 36.9 | 35.6 |
| Teachers/class | 2.0 | 2.2 | 1.7 |
| Teachers/non-teachers | 5.1 | 4.5 | 8.9 |

Table 8.3 Junior secondary PTRs, class size, teachers/class and teachers/non-teachers, 1995

| | Beijing | Haidian District | Shunyi District |
|---|---|---|---|
| Pupil/teacher ratio | 13.6 | 13.5 | 13.5 |
| Average class size | 41.6 | 41.9 | 44.2 |
| Teachers/class | 3.1 | 3.1 | 3.3 |
| Teachers/non-teachers | 1.9 | 2.1 | 3.4 |

*Tables 8.2* and *8.3* show pupil/teacher ratios (PTRs), average class sizes, teachers/class and the ratio of teaching staff to non-teaching staff. PTRs average between 16:1 and 21:1 at primary and are about 14:1 at junior secondary. For Beijing as a whole the PTR for senior secondary is 11.7:1. Average class size at primary is between 33 and 37, and at junior secondary 40 to 44. The number of teachers per class is about 2.1 at primary and 3.1 at junior secondary. The ratio of teachers to non-teaching staff is much greater at primary (5.1:1) than at junior secondary (1.9:1).

As the number of primary students has fallen the PTR has declined. The proportion of non-teaching staff has increased. At secondary level, growth has been accompanied by an increase in the PTR, the average class size, and the proportion of non-teaching staff.

Costs per student are difficult to calculate reliably, since budgeting practices are inconsistent, data are incomplete and the volume of non-budget income is uncertain. The data available produce the following estimates.

Table 8.4 Unit costs based on budget expenditure (Yuan)[2] in primary and junior secondary schools in Beijing, Haidian and Shenyui, 1994 and 1995

| | 1994 | 1995 |
|---|---|---|
| Beijing | | |
| Primary | 617 | 789 |
| Junior secondary | 2,001 | 2,657 |
| Senior secondary | 1,238 | 1,407 |
| Haidian | | |
| General secondary | 1,733 | 2,006 |
| Primary | 778 | 1,029 |
| Shunyi | | |
| General secondary | | 1,136 |
| Primary | | 446 |

*Table 8.4* shows that public expenditure per student at junior secondary is higher than for other levels of schooling in Beijing (as it is in the rest of the country). This is a result of deliberately transferring more of the total costs of senior secondary schooling to non-budget income raised from other sources. Haidian is a relatively high-cost area, as the unit costs of primary illustrate, and Shunyi is a low-cost area. The overall cost of general secondary is skewed by the proportion of junior to senior secondary schools (not shown), which varies between districts and is greater in Shunyi than Haidian. Salary costs appear to represent between 75 and 80 per cent of the total budget income.

## 1. Schools' financing in Haidian District

Haidian is a district which runs to the north-west of Beijing. It contains almost all of the city's universities and many other post-school institutions. Some well-known schools have special associations with the universities. The district is generally regarded as having a high quality of educational provision. The area has been rapidly growing, with much new residential construction, reflecting inward migration. The best schools are very much sought after and significant numbers of pupils in the school system originate from outside the district. Recent estimates suggest that many schools enrol between 15 and 20 per cent of

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[2] 7 Yuan = US$1 at the time of this study.

'choice' students (Beijing Year Book of Basic Education, 1996), whose families are resident outside Haidian.

Beijing city formally claimed to have achieved the goals set by the nine-year compulsory education policy in 1994. This is intended to ensure that virtually all resident children of the appropriate age range are enrolled in school up to the end of lower secondary. In Haidian it is claimed that between 90 and 94 per cent of students continue into upper-secondary grades in general or vocational schools.[3]

Enrolment patterns in Haidian follow those for Beijing as a whole. Early years' enrolment in primary schools averages about 18,000 for the cohort for each grade. In the middle grades this falls to about 16,000 and rises to 18,000 again by Grade 6. Junior secondary schools enrol about 20,000 in each of the first two years and about 17,000 in the final year. These patterns suggest that the population of school-age children is fairly evenly distributed. The fact that junior-secondary entrants are more than those enrolled in the last year of primary indicates some inward migration for secondary schooling. The growth in enrolments reflected in the expansion of secondary numbers (*Table 8.1*) is most likely to be the result of migration, since it is occurring in all grades simultaneously and is not evidently the result of a growing cohort flowing through from primary school. This is consistent with the rapid rate of urbanization that can be observed in Beijing and in China more generally.

The number of general secondary schools in Haidian grew from 64 in 1993 to nearly 80 in 1996. General secondary schools are those which follow an academic curriculum leading to the university entrance examination at Grade 12. There are no junior secondary schools as separate institutions without higher grades. In addition, there are about 20 combined schools. These have vocational streams at upper secondary related to particular occupations. The number of combined schools has fallen slightly, apparently because they are not as popular with parents and students as the general secondary schools which follow an academic curriculum. Typically, they are small institutions. *Table 8.5* shows enrolments and staffing data for Haidian schools for 1993-1995. The number of students enrolled at secondary level has increased by more than 15 per cent over two years.

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[3] This seems an overestimate. Grade 9 enrolments in 1995 appear to have been 20,860. General senior secondary in the same year (Grade 10) enrolled 8,775. Two-, three- and four- year vocational schools enrolled a total of about 4,000 students, leaving a further 7,000 + unaccounted for (Beijing Educational Statistics, 1995).

Table 8.5 Haidian enrolments and staffing, 1993-1995

| | 1993 | 1994 | 1995 |
|---|---|---|---|
| Number of general secondary students | 65,371 | 73,344 | 80,829 |
| Combined secondary students | 4,960 | 6,550 | 8,737 |
| Number of general secondary teachers | 5,749 | 5,838 | 3,066 |
| Number of combined secondary teachers | 514 | 541 | 561 |
| Number of non-teaching staff general secondary | 3,304 | 3,066 | 2,889 |
| Number of non -teaching staff combined secondary | 664 | 722 | 553 |

*Table 8.6* profiles average school size, the PTR and the teaching/non-teaching staff ratios for the district based on district data.[4] From this it is clear that general secondary schools average around 1,000 students and combined schools less than 500. The number of teachers averages about twice the number of non-teaching staff in general secondary schools and about the same number as teachers in combined schools. The number of teachers employed has not grown at the same rate as the number of students. This is part of a deliberate policy to allow the PTR to increase from its relatively low levels. Pupil/teacher ratios still appear generous. These have risen from around 10:1 to 14:1, with the greatest increases in the combined schools.

Table 8.6 Haidian average school enrolments, PTRs and teacher/non-teacher ratios, 1993-1995

| | 1993 | 1993 | 1994 | 1994 | 1995 | 1995 |
|---|---|---|---|---|---|---|
| | General secondary | Combined | General secondary | Combined | General secondary | Combined |
| Average school enrolment | 1,021 | 236 | 952 | 297 | 1,036 | 485 |
| Pupil /teacher ratio | 11.4 | 9.7 | 12.6 | 12.1 | 13.5 | 15.5 |
| Teacher/non-teacher ratio | 1.7 | 0.8 | 1.9 | 0.8 | 2.1 | 1.0 |

The claimed pattern of educational expenditure for the district over two years is shown below in *Table 8.7.*

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[4] Small differences between this and previous data may be the result of different conventions used at district and city level in aggregating data.

Table 8.7 Haidian budget and non-budget income and expenditure per student, 1994-1995 ('000 Yuan)

| | 1994 | 1995 |
|---|---|---|
| Planned budget expenditure | 170,300 | 222,116 |
| Total budget expenditure (including capital) | 221428 | 292,350 |
| Education allocation from enterprises | 20,140 | 20,720 |
| City allocation | 7,628 | 87,340 |
| Educational fund raising | 43,500 | 61,500 |
| Expenditure per student (Y) | 2,772 | 3,264 |
| Percentage increase over previous year | 26.2 | 15.1 |
| Budget income per student (Y) | 2,132 | 2,480 |
| Percentage increase over previous year | 24.8 | 14.0 |

District per-student costs appear higher than the earlier quoted unit costs, since district expenditure includes all educational costs, including teaching and research institutes, inspection, central administration, etc., which are not included in school-level unit costs.

The greatly increased allocation from the city arises because of the choice of Haidian for special interventions to improve the quality of below-average schools. Income from educational fund-raising by the schools appears to be growing and case-study data suggest this is likely to be the case. Educational fund-raising is achieved through a variety of methods, which include fees and other contributions from students and their families. The rapid growth in fee levels, both for students from the catchment areas of school and from additional students accepted from outside Haidian, has been a matter of concern. These issues are explored in more detail in the concluding section.

## 2. Four Haidian schools

The next section describes characteristics of the four schools included in the Haidian case studies. The subsequent section offers an overview of the schools visited in Shenyi.

### *Xiyi secondary school (Haidian)*

This school is a general secondary school of average size on the edge of Beijing city. It is in the second quartile in terms of achievement when compared to all the schools in Haidian. It has a small site with three buildings. Its intake consists of students who fail to make the cut-off grades for Beijing or Haidian key schools, but it is nevertheless attractive in terms of its location and relatively good standing. The enrolment profile of this school is given in *Table 8.8*. Total school enrolments have grown about 15 per cent in the past three years.

Table 8.8 Enrolments by Grade, Xiyi, 1996

| | Enrolment | Classes | Average class size |
|---|---|---|---|
| Grade | | | |
| 7 | 256 | 6 | 42.6 |
| 8 | 231 | 6 | 38.5 |
| 9 | 281 | 6 | 46.8 |
| 10 | 151 | 4 | 37.7 |
| 11 | 132 | 4 | 33.0 |
| 12 | 90 | 4 | 22.5 |
| Total | 1,141 | 30 | |

Xiyi has 110 staff, of which 80 are teachers, giving a PTR of 14.3, and a class/teacher ratio of 2.7. Nineteen staff are on administrative grades. The ratio of teachers to non-teaching staff is therefore 2.7. The PTR has risen from about 1:10 to approach the Beijing guidelines of 1:12 for senior secondary and 1:14 for junior secondary.

The bulk of budgeted expenditure from the district authority is allocated to salaries. The budget for 1996 was Y1,294,000 for personnel and Y200,000 for operating expenses. Around Y400,000 of the salary budget was allocated to pensions for retired teachers. Between 1995 and 1996 the proportion of the budget allocated to salaries increased from 85 to 87 per cent. Apart from a small additional subsidy of about Y20,000, the remainder is found from off-budget income. Around half of teachers' entire income is paid from budget income and half from non-budget sources (amounting to about Y1.5 million from each in 1996).

Budgeted recurrent expenditure per child was about Y1,300 per year in 1995. Students in Xiyi do not board and this means its level of subsidy is lower than the other case-study schools. It also has relatively new buildings and receives less in maintenance subsidies, as a result, than do older schools.

Off-budget income that Xiyi receives comes from several sources:

(i) The school has nine school-run businesses which are thought to generate about 25 per cent of total recurrent expenditure, amounting perhaps to Y400,000. These business are subcontracted to managers who are not on the school payroll. They pay a flat rate each year to the school, independent of their profitability.

(ii) Some space is rented for commercial use. One of the school laboratories is let for Y100,000 per year. A further Y300,000-Y500,000 (1995,1996) in rental income is derived from an office building on the school site which was commercially funded. Night schools occupy classrooms in the evening, yielding about Y50,000 per annum. Xiyi school management has invested Y1 million in land outside the city on which it intends to build a conference centre and summer-school facilities. This should generate revenue in the future. It also has plans to merge with the adjacent primary school, which has additional land, some of which may be converted into space for rent.

(iii) A significant source of income is from the 'model bilingual school', which is effectively a quasi-private activity in collaboration with a foreign-language school organization. This charges high fees to students who can afford to pay. This 'school within a school' has four classes – two at junior-secondary level and two at senior secondary. It generates about Y26,000 per month or about Y300,000 per year. It is not clear what the costs associated with this venture are. The four classes are taught by senior-grade teachers who are already employed by the school. They appear to be paid extra for this work. Other overheads are also largely accommodated within the infrastucture. This venture is seen by the school as valuable both for its income and as a centre for the development of effective teaching practices. It probably generates an additional Y200,000-Y250,000 per annum in income after costs have been met.

(iv) Xiyi also has a class of 30 for students who come from outside its catchment area. These 'choice' students pay a variable fee between Y1,000 and Y9,000 per term and an entrance fee. This raises about Y100,000 per annum. New Beijing regulations suggest guidelines of fees of Y12,000 for junior secondary and Y18,000 for senior secondary per term and payments at this level are already being made. This will increase the income from this source.

(v) All junior school students apparently pay Y48 per term (1996) in official school fees and senior school students somewhat more (Y200), adding perhaps another Y50,000 in income.[5] Students pay a food-cost fee of between Y200 and Y400 per term, which may generate a small surplus.

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[5] It is clear that some schools charge more than the official rates.

Taken together, the additional income represented by the range of activities identified above amounts to about Y1.3 million, the equivalent of an additional Y1,150 per student over and above the budgeted expenditure. It is likely that this is an underestimate of additional income.

The main capital investment in 1996 was Y1 million from the District Education Bureau for a new teaching block. Like many city schools, Xiyi has to provide benefits to teaching staff to retain their services. The funds from the bilingual school are predominantly allocated to bonus payments and other benefits. Increasingly teachers are from outside Beijing (currently 10 per cent of the staff) and this is creating an accommodation problem, which the school cannot easily solve without building new quarters for which there is currently no source of funding other than off-budget revenue.

*No. 101 secondary school (Haidian)*

This school contrasts with Xiyi. It is located adjacent to the Garden of Perfect Brightness near the summer palace on the outskirts of Beijing, a few miles to the north-west. It is one of seven Beijing city-level key schools and attracts additional support for this reason. It has a long history and a reputation for high quality similar to the schools affiliated with Beijing and Beijing Normal Universities.

The profile of enrolments in this school is shown in *Table 8.9*.

Table 8.9 Enrolments by grade – No. 101 school, 1996

| | Enrolment | Classes | Average class size |
|---|---|---|---|
| Grade | | | |
| 7 | 408 | 7 | 58.3 |
| 8 | 432 | 8 | 54.0 |
| 9 | 432 | 8 | 54.0 |
| 10 | 338 | 7 | 48.3 |
| 11 | 333 | 7 | 47.6 |
| 12 | 367 | 7 | 52.4 |
| Total | 2,310 | 43 | |

The staff total 267, of whom about 100 are non-teaching (1:2.7 teaching staff to non-teaching) and 44 are administrative. The ratio of teachers to non-teachers is 1.7, reflecting the additional complement of staff key schools receive. Class sizes are larger than in Xiyi and are over 50 because of the popularity of the school. There are 3.8 teachers per class in this school – a ratio typical of prestigious key schools. The PTR in this school appears to be about 13.9.

School income for 1995 from the district budget was about Y2,656,000. This is equivalent to about Y1,150 per student, which is less than for Xiyi school.

Off-budget income is derived from several sources.

(i) School 101 has two economic enterprises associated with it. One is a wholesaler for ice cream and drinks, the other produces plastics. About 45 per cent of the profit of these enterprises is allocated to the school. In 1995/1996 this contribution was around Y350,000.

(ii) As a prestigious key school, Beijing No. 101 is in a position to attract students from outside its catchment area who are fee paying. At junior-secondary level, the fee is Y30,000 in total and at senior high-school level Y50,000. In 1994, the school raised more than Y2 million in this way (enrolling about 50 of these fee-paying students). This kind of income is held in separate accounts and may be used for any purpose.

(iii) Beijing No. 101 school also receives between Y1.5 and Y2 million per year in subsidy from the large government departments that surround it and which provide students for the school. This money is in the form of special grants. This is additional income and is over and above what it would otherwise receive. It has no rental income as its position is not attractive to commercial interests.

In total, in School 101 off-budget was estimated at about Y4,479,000 in 1995, fully 1.7 times more than budget income. About 33 per cent of this income was spent on maintenance, 26 per cent on salaries, and a further 12 per cent on new facilities.

### *No. 19 secondary school (Haidian)*

No. 19 secondary school has a long history and was formerly associated with Yanjing University. Physically, it has a large and attractive campus for a school close to the city. Academically, it is one of the best ordinary schools without key-point status. It has been identified as one of 10 schools in the Joint Innovation Programme supported by the State Education Commission and is a pilot school for computer education.

The enrolment profile of the school is shown in *Table 8.10*:

Table 8.10 Enrolments in No. 19 school, 1996

| | Enrolment | Classes | Average class size |
|---|---|---|---|
| Grade | | | |
| 7 | 404 | 8 | 50.5 |
| 8 | 468 | 10 | 46.8 |
| 9 | 466 | 10 | 46.6 |
| 10 | 182 | 4 | 45.5 |
| 11 | 171 | 4 | 42.7 |
| 12 | 192 | 4 | 48.0 |
| Total | 1,883 | 40 | |

There are 170 staff in the school, of which 53 are non-teaching, giving a teacher/non-teacher ratio of 2.2:1. The teacher/class ratio is 2.9:1. There are about 30 administrative staff. The PTR for this school is 16.1. About 5 per cent of students board at Beijing No. 19 school.[6]

The school receives Y2,883,200 from the district government, divided between personnel expenses, operational expenses and subsidies for food and travel in 1996. This is about Y1,532 per student.[7]

Significant sources of non-budget income are:

(i) The Beijing Municipal Government standard fee is Y32 per month per junior-secondary student per term and Y200 per term for senior-secondary students. In School 19, Y700 and Y900 are actually charged, since the guidelines are regarded as 'out of date'. This generates about Y2.8 million annually.

(ii) School fund contributions from fund-raising activities amount to about Y700,000 to Y800,000 per year.

(iii) School-run enterprise contributions account for Y300,000 to Y500,000 per year from 10 activities which are used to generate income and provide some employment for surplus staff and the children of staff members. These activities include a taxi company, several shops, oven and switch manufacture, interior decorating and printing training.

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[6] This is charged at Y250 per term. In addition, students have to pay for their food costs.

[7] In this school 80 retired teachers are on the payroll. Since they are not counted as teachers, this inflates the apparent unit cost.

(iv) Contributions are received from individuals and work units associated with the school who want their children enrolled, despite not being in the official catchment area. Y700,000 is raised from this source. About 50 students are enrolled in normal classes.

(v) The school runs a special unit which houses visiting Korean students, who pay around US$2,200 per annum. This appears to generate income of between Y500,000 and Y1 million.

(vi) Other 'invisible' (i.e. on-budget) income is raised from various property-related arrangements. These have resulted in substantial physical improvements and are thought to have saved over Y9 million in capital costs that could not otherwise have been afforded. These arrangements include:

- No. 19 school has shared its sports track with the Beijing Municipal Authority. A deal was arranged whereby the Municipal Government built residential flats on school land and upgraded the track at no cost to the school.
- No. 19 schools' administration block has been reconstructed in collaboration with another work unit, which paid the costs of reconstruction and now shares the new larger premises.
- The school's assembly hall was refurbished by another work unit at no cost with an agreement for shared use.
- The school receives over Y2 million a year in rental from various arrangements to sub-let and share its facilities.

Teachers' accommodation is problematic in No. 19 school. However, new accommodation is now been financed with contributions from those who will benefit and 50 new units are to be built next year. This school seems to generate in excess of Y5 million annually before accounting for rental income.

### *Huacheng private school*

Huacheng private school is a boarding school which was opened in 1993 after new regulations were introduced. It covers Grades 1-9 and is in the process of building up its enrolments. There are now 36 private schools of a similar kind in Beijing. They are characterized by boarding (from Grade 1), high fees, and intakes of students from rich families whose academic scores are not sufficient to enter prestigious state schools.

Enrolments in Huacheng are shown below in *Table 8.11*.

Table 8.11 Enrolments in Huacheng school, 1996

| | Enrolment | Classes | Average class size |
|---|---|---|---|
| Grade | | | |
| 1 | 17 | 1 | 17 |
| 2 | 35 | 2 | 18 |
| 3 | 51 | 3 | 17 |
| 4 | 73 | 3 | 24 |
| 5 | 42 | 2 | 21 |
| 6 | | | |
| 7 | 22 | 2 | 11 |
| 8 | 40 | 3 | 13 |
| 9 | 30 | 2 | 10 |
| Total | 310 | 18 | |

The school has 56 primary-school staff, of whom 29 are non-teaching, and 40 secondary staff, of whom 19 are non-teaching. The PTR is 8:1 in primary and 4.3:1 in secondary. Class sizes are between 17 and 24 at primary and 10 and 13 at secondary and teacher/class ratios are 2.4:1 and 3:1 respectively. Twenty-nine staff are on administrative grades (60 per cent of the number of teachers). Teachers in the school are paid a basic salary of Y800 and with bonuses can reach Y2,000 per month. This is comparable with the best-paying state schools. However, there are no ancillary welfare benefits.

The school receives no state income as a private school. Fees are unregulated. In this school the fees charged are between Y4,500 and Y6,000 for tuition, Y1,500 for food, Y500 for boarding and Y300 for administrative expenses. These total between Y6,800 and Y9,100 depending on the grade. In addition, there are supplementary fees. These include semester fees of Y300-Y400 per semester for clothing, Y150 for health care, Sunday residence supplements of Y1,000, and Y500 for sundries. These fees total about Y4,000 per year. An entrance fee of Y30,000 is payable (less if students enter above Grade 1). Other costs may also fall on parents. Summer camps abroad may cost Y40,000. Those who want their children to take part in the joint arrangement with a local football club would need to pay Y6,000 per semester and Y30,000 to enrol. Average total costs per child are reckoned to be Y80,000-Y100,000 over five years, or about Y20,000 per year.

Expenditure in this school is mainly allocated to salaries, the rental of buildings, and the cost of facilities. Buildings rental costs about

Y1.5-Y2.0 million per year. New construction is funded from student-fee income. Substantial expenditure is allocated to equipment, especially computers and laboratories.

In summary, the four Haidian schools can be compared as follows in *Table 8.12*.

Table 8.12 Four Haidian schools, 1996

| | Xiyi | No. 101 | No. 19 | Huacheng |
|---|---|---|---|---|
| Teachers | 80 | 167 | 117 | 48 |
| Non-teachers | 30 | 100 | 53 | 48 |
| Administrators | 19 | 44 | 30 | |
| Students | 1,141 | 2,310 | 1,883 | 310 |
| Classes | 30 | 43 | 40 | 18 |
| Pupil/teacher ratio | 14.2 | 13.8 | 16.1 | 6.5 |
| Teacher/non-teacher ratio | 2.6 | 1.7 | 2.2 | 1.0 |
| Teacher/class | 2.6 | 3.9 | 2.9 | 2.7 |

## 2. School financing in Shunyi County

Shunyi County is one of the eight affiliated counties of the Beijing administration and is located to the north-east of the city. It is a plain area with relatively low land and labour prices and intensive agriculture. It has attracted a number of joint-venture manufacturing companies. The demand for schooling in this area is growing as industries develop. The county economy is much more buoyant than those of the surrounding mountainous counties. Educational provision is, however, much less developed than in the urban areas of Beijing. The rural area of Shunyi has seen an increase in enrolments, which is best explained by increased retention and progression with possibly some inward migration from more distant rural areas.

Primary enrolments are increasing in Shunyi and the growth rate has been averaging over about 8 per cent a year. Secondary enrolments have grown more slowly at around 6 per cent. The number of secondary schools remained the same between 1993 and 1995 constraining enrolment growth. Most schools are junior secondary only (39 out of 46) (*Table 8.13*).

Table 8.13 Shunyi enrolments and staffing, 1993-1995

| Year | 1993 | 1994 | 1995 |
|---|---|---|---|
| Number of general secondary students | 28,736 | 30,554 | 33,186 |
| Combined secondary students | 1,296 | 1,708 | 2,500 |
| Number of general secondary teachers | 2,195 | 2,282 | 2,105 |
| Number of combined secondary teachers | 118 | 102 | 143 |
| Number of non-teaching staff general secondary | 672 | 648 | 988 |
| Number of non-teaching staff combined secondary | 80 | 54 | 109 |

*Table 8.14* shows the average school size, the PTR and the teaching/non-teaching staff ratios for the district. General secondary schools average around 850 students and combined schools about 350. The number of teachers averages about three times the number of non-teaching staff in general secondary schools, but the ratio appears to be falling. PTRs have risen to nearly 16:1 and are greater than in Haidian.

Table 8.14 Shunyi average school enrolments, PTRs and teacher/non-teacher ratios, 1993-1995

| | 1993 | 1993 | 1994 | 1994 | 1995 | 1995 |
|---|---|---|---|---|---|---|
| | General secondary | Combined | General secondary | Combined secondary | General | Combined |
| School enrolment | 736.8 | 185.1 | 804.0 | 284.7 | 850.9 | 357.1 |
| Pupil/teacher ratio | 13.1 | 11.0 | 13.4 | 16.7 | 15.8 | 17.5 |
| Teacher/non-teacher ratio | 3.3 | 1.5 | 3.5 | 1.9 | 2.1 | 1.3 |

Shunyi allocated about 20.5 per cent of its revenue to educational expenditure in 1995, an increase from the level of the previous four years of about 18 per cent. The township level government plays a more important role in financing schools in Shunyi than in Haidian. Townships provide most of the resources to purchase equipment and for school maintenance because schools tend to be more dependent on budget income than those in the city. School-run businesses are less common. Educational taxes on enterprises generate far less, since there are relatively few to tax. The public budget has been growing strongly. (*Table 8.15*).

Table 8.15 Recurrent budget per student (all levels), 1991-1995

| | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|
| Recurrent budget/student | 364 | 416 | 590 | 616 | 727 |
| Growth | 13.0 | 14.3 | 22.4 | 21.0 | 18.0 |
| Operating costs/student | 135 | 147 | 157 | 160 | 186 |
| Growth | 27.3 | 8.8 | 7.2 | 1.8 | 16.3 |
| Average staff income | 2,776 | 3,385 | 4,965 | 6,208 | 7,772 |
| Growth in percentages | 4.3 | 22.0 | 46.7 | 25.0 | 25.2 |

Growth in budgeted educational expenditure has been concentrated in personnel costs. Salaries now account for about 80 per cent of total costs, compared to 73 per cent in 1991. The recurrent budget per-student allocations were Y1,650 for vocational schools, Y1,136 for general secondary, and Y446 for primary in 1995. The proportion allocated to salaries was about 74 per cent in general secondary and 83 per cent at primary.

### *Three Shunyi schools*

The main characteristics of the three schools are shown in *Table 8.16.*

Table 8.16 Characteristics of Schools in Shunyi, 1996

| | Beiwu | Chengguan | Niulushan |
|---|---|---|---|
| Teachers | 53 | 110 | 125 |
| Non-teachers | 33 | 90 | 135 |
| Administrators | 19 | 46 | 38 |
| Students (total) | 862 | 1,887 | 1,721 |
| Junior | 580 | 893 | 795 |
| Senior | 282 | 994 | 926 |
| Classes (total) | 19 | 35 | 33 |
| Junior | 13 | 17 | 15 |
| Senior | 6 | 18 | 18 |
| PTR (average) | 16.3 | 17.1 | 13.8 |
| Teacher/class ratio | 2.8 | 3.1 | 3.8 |
| Average class size | 45.4 | 53.9 | 52.1 |
| Junior | 44.6 | 52.5 | 53.0 |
| Senior | 47.0 | 55.2 | 51.4 |
| Teachers/non-teachers | 1.6 | 1.2 | 0.9 |

### *Beiwu school*

Beiwu is the smallest of the three schools. Its public budget was Y759,000 in 1995 and the cost per student rose from Y758 in 1993, to Y881 in 1994 to Y1,035 in 1995. Of this about 25 per cent was for non-salary expenditure.

The additional sources of revenue that Beiwu mobilizes include those listed below:

(i) Fees are charged to students who fall below the examination entrance level set. These students pay up to Y7,000 for registration for three years. Currently, the numbers are small, but seem likely to grow as demand for secondary schooling increases.
(ii) The school fund is supported by local benefactors. The sum of Y490,000 was raised from this source in one year, but this income is irregular.
(iii) The local village government donates some free space in an unused building.
(iv) Extra fees of Y60 for junior students and Y200 for senior students are charged each year. The boarding and food fees (Y100) are, though, both too small to cover costs and have to be subsidized.

Teachers' salaries in Beiwu range from Y450 to Y700 and are almost entirely provided from the budget income. Married teachers are given free housing and utilities and all teachers receive benefits in kind, e.g. food from the school. Only Y20,000 was available in 1995 to spend on teaching resources. In sum, this school is largely dependent on budget allocations to meet its costs.

### *Chengguan No. 1 school*

Chengguan is a county key school. It is located in Shunyi city and is a complete school with fairly good facilities. The school has 1,800 students and provision for 600 boarders. This school receives much more income than Beiwu from a wider range of sources, as can be seen from *Table 8.17*.

Table 8.17 Income for Chengguan school, 1993-1995

| | 1993 | 1994 | 1995 |
|---|---|---|---|
| Financial allocation | 1,488,400 | 2,605,100 | 2,465,400 |
| Social donations | 550,500 | 697,500 | 1,326,800 |
| School factories | 62,270 | 101,000 | 205,300 |
| Tuition | 65,000 | 211,000 | 356,400 |
| Boarding fees | 37,200 | 72,700 | 78,700 |
| Total | 2,203,360 | 3,087,300 | 4,432,600 |

The cost per student in this school was about Y1,370 in 1995, based on budget allocation alone. The budget was almost doubled by the other sources of income. The result is a relatively well-resourced school with 'three machines in every room' (video, TV, projector), a cable TV station, and a new library. Many of the county leaders' children attend this school and their parents arrange materials and assistance for maintenance and school improvement.

Teachers' salaries vary between about Y460 and Y800 per month and are based on the structured salary system. Some teachers are allowed to buy houses at subsidized rates as an incentive to stay. Chengguan receives support from the Beijing Education authority, since it is a key school. Most of the building costs are met from this source – over Y10 million in the past two years.

### *Niulushan school No. 1*

This school is in a suburban area and has a long history. It has a low PTR and high teacher-per-class ratio, reflecting its key school status. Over 80 per cent of students are boarders. The school is intending to increase its focus on upper-secondary students and allow the junior streams to decline. In this school there are more non-teaching staff than teaching staff, partly because of the level of boarding and partly because this includes some staff in school-run factories. In 1995, Niulushan received about Y2,690,000 from budgeted funds, giving a unit cost of around Y1,563.

The fairly modest amount of about Y400,000 was raised by the school in 1995 from fund-raising activities and donations. Fees paid by boarders from outside the catchment area are the other source of income. There are over 300 of these students paying Y3,000 per term, thus generating about Y900,000 per year. School-run factories make small contributions to the operating costs.

## 3. Issues arising from the Beijing case study

School funding in Beijing is essentially based on a historical baseline from which each year an increase is agreed. Thus each year an increase, typically between 5 and 10 per cent (except in times of high inflation), has been agreed. The total amount available is then distributed according to various formula that link staffing to student numbers, etc., with the proviso that the salary budget will be paid as a first call on the money available. Salaries are 'the tractor that pulls the budget', since these have to be paid. Current policy creates an obligation to respond to the 'three growths' expected in fund allocation. Local authorities are encouraged to meet these expectations. The 'three growths' are that:

(i) education should grow as a percentage of the public budget of the district;
(ii) operating costs should increase as a percentage of the total;
(iii) educational allocations should increase at more than the rate of increase in prices.

Various methods are used to raise educational funds. These include:

- People's Education Fund – Organizations and individuals are encouraged to make contributions to the People's Education Fund, which is used to support capital works.
- Education taxes – A 2 per cent education tax is levied on all salaried employees by Beijing city government. This is paid into a central fund which is drawn on for capital works. The revenue generated by the levy is substantial, but it is also likely that the full amounts are not collected, since tax enforcement is very problematic, especially outside state enterprises. Current regulations of the Beijing Municipal Government specify that an educational tax is payable by building contractors constructing residential blocks (Y10 million per 80,000 sqare metres of accommodation), to be used for school improvement and construction.
- Enterprise taxes – State enterprises and other production units are taxed on turnover or profits at between 2 and 5 per cent to generate revenue for the education budget.
- School-run businesses – Many Beijing schools have school-run businesses associated with them. These often have a fixed fee arrangement negotiated each year and contribute to school

budgets on this basis. They are usually largely autonomous enterprises located at the school, but possibly sharing management staff.

- Rental of assets – Rental of land and buildings can be a substantial source of income for schools on prime sites in the city.
- School fees – Most schools charge modest fees to local residents in the range of Y30 per term. In addition, supplementary fees are becoming common, e.g. for laboratories, computing, sports, uniforms, military training, and many schools appear to charge more than the statutory minimum fee. Entrance-fee payments are also becoming common on first enrolment to secondary school, though these are often described as contributions to school funds.
- Fees for 'choice' students – Students from outside the catchment area of schools can be charged fees. Officially these are limited to Y12,000 and Y18,000 at lower and upper-secondary school. These limits are widely disregarded and higher fees are charged if demand is strong enough.
- Fee for overseas students – Some schools run special units which attract overseas Chinese and other school-age students at high fee rates.

The case studies above draw attention to the extent to which schools in Beijing are financing themselves through income from outside the public budget. In most cases, this appears to have been growing much faster than public funding. A number of issues emerge from the case-study data. These relate to teachers' salaries, the numbers of non-teaching staff, teaching loads and internal efficiency, the growing direct costs of schooling, increasing enrolment of 'choice' students, and the largely unregulated growth of school-run businesses.

## 4. Teachers' salaries

Teachers' salaries in Beijing have been paid according to scales which partly take into account increases in the cost of living. The appropriation from public funds only covers a proportion of the total cost of a teacher. The public component has reduced in size since 1994, with the result that schools have had to meet an increasing proportion of the total. This new scheme gives an incentive to schools to employ staff according to need and reduce the numbers of non-teaching staff (though this has yet to appear in the statistics on those employed). It should also encourage PTRs to rise and might reduce teacher-per-class ratios.

The disadvantage is that it may encourage or require more and more time to be invested in fund-raising activities at the expense of attention to effective school management.

The structured salary scale for teachers in Beijing combines a basic salary and several performance-related elements. The approximate incomes for different grades of teacher are shown below in *Table 8.18*. Teachers' grades are determined primarily by seniority and length of service.

Table 8.18 Teachers' salaries in Yuan by level of appointment, 1996

| | Probationer | Grade 3 | Grade 2 | Grade 1 | Grade 1a | Non-teaching |
|---|---|---|---|---|---|---|
| Salary (Y) | 700-800 | 800-1,000 | 900-1,000 | 1,200-1,400 | 1,500-1,600 | 800-1,000 |

These salaries are made up of a basic component, which is paid by the city government. The remainder of the salary is determined by a complex set of rules that vary in different parts of China. In Beijing, the city contributes a further 30 per cent above the basic salary. In the case of a Grade 2 teacher, the basic is about Y230. With 30 per cent addition this reaches about Y300. Subsidies for teachers' food and travel account for about Y150. The remainder of the 'structured salary' is paid by the school. This is made up of a variety of performance-related components, e.g.:

- Y200 per month for a teacher in charge of a class;
- Y12 per teaching hour, Y6 per teaching plan for Grade 1a teachers; Y9 and Y5 for Grade 1 teachers; and Y8 and Y4 for Grade 2 teachers (more senior teachers are therefore rewarded at a higher rate);
- Y400 for teachers' festival; Y150 for autumn festival; Y600 for spring festival.

A Grade 2 teacher teaching 10 periods and writing 6 lesson plans a week, who is a class teacher, would therefore receive $(10 \times 8 + 6 \times 4) \times 4 + 200 =$ Y616 per month in addition to the basic plus subsidies of Y450, thus earning about Y1,050. Teachers' incomes in the case-study schools in Haidian appear to vary between about Y700 and Y1,400 depending on experience, seniority and workload.

The 'structured salary scheme' has the effect in practice that often half or more of teachers' total income has to be raised by the school. This is clearly easier in some schools than in others. It also means that incomes of teachers vary considerably between schools, with the consequence that the best teachers have an incentive to move to where real incomes are greatest. True teaching costs per student are difficult to compute as a result. Though the state-funded element of the salary can be identified reliably, the rest of the salary may only be known locally. In Beijing it appears that total income is usually between double and triple the state-funded element, and may in some cases be more. It appears that most city schools can meet the obligations they have to complement the basic salary. The largest differences between schools arise from the additional benefits they can provide in terms of housing, health care and educational benefits for staff.

Teachers may make additional income over and above their official income. Common arrangements include additional weekend or evening tuition classes for payment, often run on school premises. Teachers may also be acting as private tutors in the evenings. One estimate suggests that in the case-study schools this may enhance income by Y200-300 per month. Teachers may have other 'second jobs'. No systematic information is available on this.

## 5. Teaching loads

Secondary school curriculum guidelines provide for about 30 teaching periods per week for 42 weeks. Typically, there are six teaching periods in the school day for five days a week, taught between about 7.30 a.m. and 3.00 p.m. Each 45-minute period is treated as a 'teaching hour'. A normal teaching load is considered to be about 12 teaching hours per week. This time may include lesson preparation and marking time. It is therefore not uncommon to find teachers who teach about two periods of class contact each day.

In addition to the teaching periods, most secondary schools have additional activities after school hours, which are necessary to meet the prescribed guidelines for extra-curricular activity. These add one to two hours on to the school day.

The staffing of the schools we have examined suggests that typically there are between two and three teachers per class. A school with an 8-form entry might therefore be staffed along the following lines (*Table 8.19*).

Table 8.19 Teaching loads in Beijing schools, 1996

| | | |
|---|---|---|
| Number of students | 8 × 45 × 6 | 2,160 |
| Number of classes | 8 × 6 | 48 |
| Number of teachers | 8 × 6 × 2.5 | 120 |
| Number of taught periods per day | 8 × 6 × 6 | 288 |
| Number of periods taught per teacher per day | 288/120 | 2.4 |

In effect this implies about 1.5 hours actual face-to-face contact per day. In addition, teachers will be expected to complete lesson plans – possibly one per day, but these may repeat from year to year. They will also have marking to undertake for two classes, assuming they have set tasks that require this.

Chinese schoolteachers have pastoral responsibilities that may extend beyond those familiar in other countries. Visiting parents at home is common, pressures from parents (especially in urban areas) require consistent setting and marking of homework, and many extra-curricular activities are organized. Both parents usually work. There is some expectation that schools will provide additional classes and club activities after school hours so that children only return to the home when their parents do.

In summary, teaching loads are light in terms of contact hours, and teacher/class ratios are high by international standards – sometimes more than 3:1. This relative inefficiency leads to higher unit costs than would otherwise be the case.

## 6. Non-teaching staff

The ratio of teaching to non-teaching staff in the case-study schools is between 2:1 and 3:1. The majority of these staff are described as administrative. They include the principal and vice-principals, the party secretary, accounts staff, directors of teaching programmes, directors of services, librarians and other minor staff. In addition, most secondary schools have drivers, cleaners, cooks and a variety of other non-administrative staff. These staff may be shared to some extent with other activities associated with the school – e.g. school-run business, etc. Their basic salary costs appear to fall on the school budget.

Schools are staffed like other state-run organizations in China. Zhou Enlai's principle that "three people should eat two people's food" (i.e. employment should be distributed to ensure all are in work, even if this means they are under-employed) remains influential. This may be changing as China modernizes. Clearly, there are limits to the rate at which considerations of efficiency may come to have more weight than concerns for distribution.

A variable proportion of staff on the payroll will be retired teachers. The general practice is that when teachers retire, their school budget continues to include their basic salaries and associated allowances (without the performance-related enhancements). This is factored into the formula used to provide the base salary budget from public funds. It has the effect of increasing the apparent unit costs in old schools with many retired staff.

## 7. Direct costs to parents

The direct costs to parents of school attendance are difficult to establish and, in any case, will vary considerably between schools. Some indication of the kind of costs parents bear can be illustrated from the case of Li Ang, a 13 year-old attending a secondary school in Beijing.

**The case of Li Ang**

Three months before the entrance examination held by the school to select new entrants his parents employed two family tutors. Li Ang was told to concentrate on his studies and was prevented from watching television. Li Ang's father is a factory worker and his mother a kindergarten nurse. The family income is about Y2,000 per month. The family tutors cost Y400 per month. Unfortunately, Li Ang's results were two points less than the entrance level required. In order to gain entry to the school they favoured, Li Ang's parents were asked to pay Y6,000 to the school's work unit and another Y6,000 as a contribution to the non-budget income of the school. On entering the school several other expenses were incurred. The uniform cost Y200, a military education fee of Y50, Y150 for books, Y32 for term fees, Y25 for laboratory fees, Y100 a month for food, and Y400 for a bicycle to travel to school. On top of this, his parents are expected to pay Y150 a month to the school as a regular fee.

Overall, the costs to the parents of attending this school appear to average between Y1,300 and Y2,000 per year, depending on the grade that the student attends. This is comparable to the expenditure per student from the budget income.

Private tuition is becoming widespread in urban areas. Family tutors (often university students) are employed for several hours a week in key subjects. This is concentrated around the beginning of primary, the end of primary for selection to junior secondary and at the end of junior secondary. Tutors typically cost around Y20 an hour and a child might receive 4-6 hours a week, totalling about Y400 a month.

## 8. 'Choice' students

The competition for access to key schools and others with a good reputation for academic results in the university entrance examinations has become intense in and around Beijing. Since many of the universities in Beijing are located in Haidian, this has meant that many of its schools are seen as desirable. This has created opportunities for schools to increase off-budget contributions, especially from students who would not qualify to attend on residential grounds and/or from those who have scores below the normal entry level for the school. Schools have been charging fees of around Y30,000 for junior secondary and Y50,000 to such students ('choice' students) to allow enrolment. On top of this, additional term fees are charged.

Official policy on fees is complex to interpret. There are national guidelines, but these are interpreted in different ways by lower-level authorities. Practice clearly varies widely even within Beijing. In 1996, fees for students from outside the catchment area of schools associated with Beijing Normal University were supposed to be abolished. Parents were given the choice of reimbursement of their fees and withdrawal of their students, or continuing with previous practice, which most chose to do. These schools receive public grants, which only cover about 25 per cent of their running costs. After a decision was made to focus on school activities and abandon school-run businesses, the main source of additional financial support has been students' fees (Y60,000 as an admission fee and additional term fees) and rental of space. It is now proposed that all fees should be phased out. There is no obvious way in which these schools will be able to meet their recurrent expenses in the future without the income from fees.

The practice of charging high fees for 'choice' students has been criticized by a Vice-Minister and the State Council. Guidelines in Beijing suggest that a maximum fee of Y12,000 for junior secondary and Y18,000 for senior secondary for 'choice' students will be enforced for next year in line with State Council pronouncements. However, it is already true that this maximum is being exceeded by some schools, apparently without penalty. The fear is that, increasingly, access to prestigious secondary schools is being rationed by price. Some studies suggest that educational expenditure now ranks third behind accommodation and food as a concern for household expenditure amongst families in Beijing.

## 9. School-run businesses

School-run businesses are not new in China. They first appeared in 1958 during the 'Great leap forward' as a way of introducing the linking of work and study skills and relating theory and practice. They were also encouraged during the cultural revolution to dignify labour. In the 1980s, school-run businesses started to become more and more important in the financing of education as the responsibility system gave more control to the local level and the state to shift more of the responsibilities for financing education to the local level. In the 1990s it became unambiguously clear that the main function of school-run businesses is to generate additional income to cover the running expenses of schools.

School-run businesses in Beijing are attractive for several reasons. Enterprises organized under the umbrella of schools enjoy a three-year tax holiday and have a very favourable tax regime subsequently, when compared to free-standing enterprises. In addition, those that manage the businesses are not personally responsible for their liabilities. They therefore take no risk, unlike more commercial ventures. Schools as legal entities can also borrow capital without the need for collateral that may be forfeited if a default occurs.

In the schools in our case study, flat-rate contracts appear to be written on an annual basis for transfer payments from school-run businesses to the school budget, rather than as a percentage of turnover of profits. This may also be favourable to managers and employees of school-run businesses. Surpluses generated may be retained within the business and used to pay enhanced salaries to staff.

The staffing of school-run businesses is very varied. In some cases, some of the costs may be marginal. Where surplus staff are redeployed (whose salaries would be paid in any case), additional staff costs may be minimal.

Schools in China are part of larger social and production organizational units (danwei – work units), which have broad social responsibilities for the welfare of their members. This helps explain some of the economic differences between schools in China and in other countries. Thus, staffing and work responsibilities recognize that there is an obligation to support the welfare of the community as a whole, school expenditure will include a subsidy of health care and other living costs for staff, accommodation costs are frequently heavily subsidized and their assets are available to support the range of activities of the work unit.

Arguably, the economic relationships between schools and their communities have been changing. Relaxation of constraints on enterprises and accountability, the encouragement of local responsibility, and more generally a climate in which deregulation has occurred *de facto* or *de jure*, have resulted in new roles becoming apparent. In some respects, school organizations are acting as intermediaries between sources of finance and productive enterprise - their legal status and risk protection enables them to lend capital to businesses at favourable rates with little tax obligation on profits. They are therefore attractive shelters for small businesses in which individuals can prosper and enjoy much of the benefits of their commercial success.

In effect, school management can occupy a kind of 'rentier position' in which the assets they control (physical (space and buildings), human (staff), and financial) can be made available for income-generating purposes for a rent. The assets are given as gifts to schools (the land they control is of no direct cost to them, staff can be seconded at no additional cost, and the financial rents arise from legislation and custom and practice). This does represent a novel way of raising finance for schooling which is generally not significant in other countries.

The State Council indicated that it was its intention to phase out school-run businesses by 1999. Although it is thought they have played an important role, there is now some feeling that they should be separated from schools and cease to enjoy the special privileges that make them attractive (e.g. tax incentives). It is clear that they can become a distraction to school management and they constitute an uncertain source of financing that is concentrated in areas where there is economic growth which is largely absent elsewhere. The preference seems to be to favour concentration on educational activities in the future and find other ways of solving financial problems. It remains to be seen whether this will become a reality, since many schools will experience a dramatic drop in income if school-run businesses are no longer allowed.

## B. Case study 2 – Wenzhou

In Wenzhou, the general research design included for data collection included two key schools, two ordinary schools and two average schools located in Lucheng District of the central city of Wenzhou and in the suburban county of Pingyang. Wenzhou is a prefectural city governing three districts in the central city, two county cities, and six counties. It lies in the south-east of Zhejiang Province with a total area of 11,784 square kilometres and a population of 7 million people . In the early 1980s, the rapid economic growth in Wenzhou was summarized in China as the 'Wenzhou Model', and contrasted with the 'Zhujiang Delta Model' in Guangdong Province and 'South Jiangsu Model' in Jiangsu Province. The main features of the 'Wenzhou Model' are:

(i) household-based production and private enterprise;
(ii) a strong market-oriented system of distribution;
(iii) a decentralized economic management system featured by 'small government, big market' and 'wealth lies in the private sector'.

During the 1980s, Wenzhou was famous for its production of illegal copies of manufactured products as the first stages of rapid economic growth took place. Subsequently, local government has begun to emphasize the need to develop new products and put quality high on the agenda to start a new phase of local economic development. Educational investment in secondary schools is regarded as important for this reason.

In the 1990s, schools were encouraged to generate more and more 'non-budget' income. This is consistent with more general changes in the Wenzhou economy that have allowed more autonomy to individuals, and organizations to take advantage of the opportunities provided by the 'socialist market economy'. The case studies show how this is affecting some schools in Wenzhou.

### *Lucheng District*

Lucheng District is in the centre of Wenzhou city. It has an area of 88 square kilometres, 8 per cent of the total city area, and a population of 477,000 (43.5 per cent of the total for the city). In 1994, its GNP was Y3,350 million, 30 per cent of the total GNP in the whole Wenzhou area; public revenue was Y303 million, (9 per cent of the total GNP), of which about 50 per cent was distributed for use by district governments. Primary industries accounted for about 2 per cent of GNP, manufacturing production 54 per cent and service-sector activity 44 per cent. Little manufacturing is state owned. Most (74 per cent) is collectively owned, with about 25 per cent in the hands of individuals and private ventures. There are few joint ventures. Over 40 per cent of service-sector activity is individually owned and 19 per cent collectively owned. The non-state-owned economy is therefore the dominant force in its economic life.

There are two types of school in Lucheng District. Some schools are controlled by the city government; the others are district schools under the district authorities. *Table 8.20* profiles the school system.

Table 8.20 Profile of Lucheng school system, 1993, 1994, 1995

| | Number of schools | Classes | Enrolment | Graduates | Total staff | Teachers | Pupil/ teacher ratio | Average class size | Teachers per class |
|---|---|---|---|---|---|---|---|---|---|
| 1993 | | | | | | | | | |
| Senior | 1 | 6 | 235 | 156 | | | | 39.2 | |
| Junior | 4 | 95 | 4,728 | 782 | 355 | 268 | 17.6 | 49.8 | 2.8 |
| Primary | 64 | 948 | 46,107 | 6,268 | 1,896 | 1,726 | 26.7 | 48.6 | 1.8 |
| 1994 | | | | | | | | | |
| Senior | 1 | 6 | 217 | 63 | | | | 36.2 | |
| Junior | 5 | 95 | 4,947 | 1,352 | 383 | 268 | 18.4 | 52.1 | 2.8 |
| Primary | 63 | 962 | 47,645 | 7,270 | 1,848 | 1,726 | 27.6 | 49.5 | 1.8 |
| 1995 | | | | | | | | | |
| Senior | 1 | 6 | 219 | 67 | 30 | 22 | 9.9 | 36.5 | 3.7 |
| Junior | 4 | 99 | 5121 | 1,539 | 389 | 306 | 16.7 | 51.7 | 3.1 |
| Primary | 62 | 960 | 47,427 | 8,932 | 1,872 | 1,731 | 27.4 | 49.4 | 1.8 |

Primary pupil/teacher ratios (PTR) average 28:1 and junior secondary about 17:1. Class sizes are around 50, except at senior secondary, where they are about 35. Teacher/class ratios are 1.8:1 in primary and over 3.0:1 in junior secondary. PTRs have been decreasing, as have class sizes. The pattern of enrolments by grade for primary and secondary schools is as shown in *Table 8.21* for Lucheng.

Table 8.21 Enrolments by grade – Lucheng, 1995

| | Grade1 | Grade 2 | Grade 3 | Grade 4 | Grade 5 | Grade 6 | Staff | Teachers |
|---|---|---|---|---|---|---|---|---|
| Primary enrolment | 8,870 | 8,689 | 7,788 | 7,802 | 7,538 | 7,038 | 1,872 | 1,731 |
| Junior secondary | Grade 7 | Grade 8 | Grade 9 | | | | | |
| | 1,148 | 1,733 | 1,568 | | | | 389 | 306 |
| Senior secondary | Grade 10 | Grade 11 | Grade 12 | | | | | |
| | 288 | 277 | 107 | | | | 30 | 22 |

These enrolment figures indicate that numbers enrolled fall by about 20 per cent from Grade 1 to Grade 6. Secondary entrants are about 16 per cent of those completing primary. The numbers enrolled at senior secondary are very small – about 3 per cent of the cohort. The implication is that for this city area many pupils undertake secondary schooling outside the district.

### *Pingyang County*

Pingyang County is an agricultural county in Wenzhou with an area of 1,050 square kilometres and a population of 780,000. It consists of 16 townships (zhen) and 18 sub-districts (xiang). In 1994, its total GNP was Y2,269 million. Public revenue was Y171 million (7.5 per cent of the total GNP), of which 44 per cent was allocated to the county. Primary production accounted for 15 per cent of GNP, manufacturing 56 per cent and service-sector activity 29 per cent. Collectively owned (47 per cent) and individually owned (49 per cent) enterprises control most production.

Shuitou Township and Aojiang Township, where sample schools are located, are ranked as the top two areas in total revenue, and third and fifth respectively in per-capita income. In 1994, the industrial output of Shuitou was 20 per cent of the county total and in Aojiang 26 per cent. *Table 8.22* profiles the school system.

Class sizes in secondary schools are around 50:1 and at primary about 38:1. Class sizes are significantly smaller in rural primary schools. The number of non-teaching staff was not available for Pingyang, so it is not possible to calculate PTRs and teacher/class ratios, except using the number for all staff. When this is done it seems that PTRs declined and teacher/class ratios increased between 1993 and 1994. *Table 8.22* profiles the system.

Table 8.22 Profile of Pingyang school system, 1993, 1994

| | Schools | Classes | Enrolment total | Enrolment girls | Grades | New enrolments | Total staff | PTR (total staff) | Average class size | Teacher/ class ratio (all staff) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1993 | | | | | | | | | | |
| General secondary | 46 | 572 | 29,480 | 12,625 | 7,753 | 11,166 | 2,251 | 14.0 | 51.5 | 3.9 |
| Town | 35 | 474 | 24,661 | | 6,765 | 9,223 | | | 52.0 | |
| Rural | 11 | 98 | 4,819 | | 988 | 1,943 | | | 49.2 | |
| Primary | 372 | 2,025 | 77,532 | 35,784 | 13,445 | 13,580 | 3,225 | 24.0 | 38.3 | 1.6 |
| Town | 22 | 1,370 | 55,352 | | 9,846 | 9,606 | | | 40.4 | |
| Rural | 150 | 655 | 22,179 | | 3,599 | 3,974 | | | 33.9 | |
| 1994 | | | | | | | | | | |
| General secondary | 47 | 622 | 32,549 | 14,011 | 8,239 | 13,474 | 2,521 | 12.9 | 52.3 | 4.0 |
| Town | 35 | 516 | 27,320 | | 7,070 | 11,077 | | | 52.9 | |
| Rural | 12 | 106 | 5,229 | | 1,169 | 2,397 | | | 49.3 | |
| Primary | 344 | 1,995 | 76,035 | 34,972 | 14,763 | 13,960 | 3,463 | 21.9 | 38.1 | 1.7 |
| Town | 214 | 1,354 | 54,415 | | 10,898 | 10,029 | | | 40.2 | |
| Rural | 130 | 641 | 21620 | | 3,865 | 3,931 | | | 33.7 | |

## 1. The case-study schools

The overall enrolments and staffing of the case-study schools are given below in *Table 8.23*. All the schools are general secondary schools with junior and senior secondary grades, except school D, which has junior secondary enrolments only. Schools E and F are in semi-rural locations. Enrolment rates are claimed to be well over 90 per cent for both primary and junior secondary schools. Schools A, B, C and D are in Wenzhou and schools E and F are in Pingyang.

Table 8.23 Enrolments, staffing and pupil/teacher ratios, 1995

| School | Enrolment total | Total staff | Retired staff | Students/total staff |
|---|---|---|---|---|
| A | 1,754 | 146 | 69 | 12.0 |
| B | 1,668 | 138 | 71 | 12.1 |
| C | 1,096 | 91 | 17 | 12.0 |
| D | 1,348 | 120 | 2 | 11.2 |
| E | 1,446 | | | 13.1 |
| F | 1,608 | | | 15.5 |

From *Table 8.23* we can see that average pupil to total-staff ratios in these schools are between 11:1 and 16:1. Three of the case-study schools have experienced falling enrolments and three have seen increases. Total enrolments increased by about 6.2 per cent between 1993 and 1995. What will happen to secondary enrolments in future is uncertain. If fee-paying external students are encouraged, or at least left to the market to decide on their volume, Wenzhou's geographic and economic position will probably ensure that numbers grow, since the schools are very attractive to outsiders in areas where secondary schooling is restricted in access and poor in quality. If enrolment is restricted to the local population, then growth in numbers is likely to be slow, except perhaps at upper secondary

## 2. The education financing system

The administration of public schools is based on local-level authorities, with prefectural, county and district government (in the central city); and township and xiang government (in the countryside) sharing the responsibility of financing and management of the schools. There can be various types of school located in one area. In Lucheng District, there are prefectural city schools and district schools. They are financed and managed by different levels of government.

The funding process for public schools is essentially as follows: first, the Education Commission in each level of government submits an education service budget to the Bureau of Finance at the same government level every year. This includes a staff budget, a non-salary budget and a development budget. The Bureau of Finance submits the revised budget to the People's Congress at the same level for approval, after considering whether it meets criteria for balanced investment and can be afforded. Once the budget is approved by the Congress, the final budget will take effect with the Education Commission responsible for distributing the money to each school.

## 3. Income

Currently, it is normal for publicly funded schools in Wenzhou to receive only 50-60 per cent of their total incomes from the public budget. The public budget for each school is decided according to estimates made for a number of categories, which include salaries; salary supplements; staff welfare; pensions[8]; student-support allowances; a non-salary component; and various earmarked grants for special purposes. Salaries and salary supplements normally account for over 70 per cent of the budget income, and pensions for most of the remainder. About 15 per cent is allocated to non-salary categories.

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[8] Retired teachers remain on the payroll of the school which provides their pension payments.

Education authorities are partly funded by tax levies on businesses, turnover taxes on enterprises and payroll taxes. These are collected centrally and a proportion of total revenue is earmarked for educational support. This appears to be around 5 per cent of the total revenue in Wenzhou. Different systems operate in rural and urban areas which provide the ‘additional educational expenses allowance’, which supplements the main education budget. In the past two years this has added about 12 per cent to the allocations made. In practice, rural areas tend to generate less through this route, since it is difficult to tax all but state organizations effectively. Urban areas probably benefit more, both because they have much greater economic levels and because revenue collection can be more efficient. There does not appear to be much effective cross-subsidy of poor areas by rich areas under the existing system. This is consistent with policy which currently encourages differentiation between areas as part of growth strategies that permit growing inequalities.

Non-budget income arises from tuition fees and other charges; income from school-owned enterprises and contributions from school businesses (to which students may contribute through their labour, but which usually have employees); donations; and other income sources, including rental charges and various fees for services; and interest on balances. These together provide the non-budget income categories.

*Charts 8.1* and *8.2* show the growth of incomes from budget and non-budget sources in five of the six sample schools for which data are available over the period 1993 to 1995.

Chart 8.1. Income from budget sources in sample schools, 1993-1995 (Yuan)

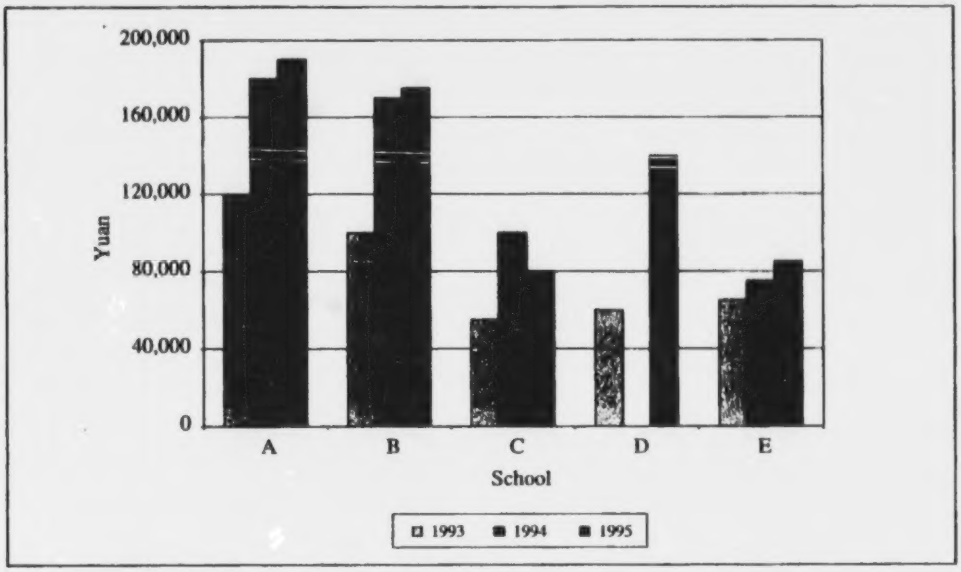
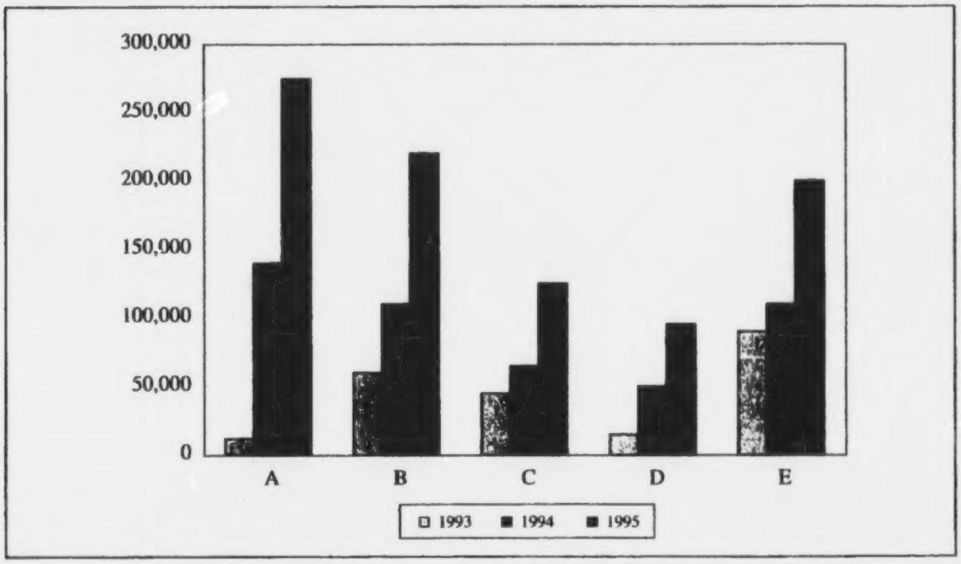


Chart 8.2 Income from non-budget source in sample schools, 1993-1995 (Yuan)



Growth in budget income slowed in 1994/1995 when compared to 1993/1994. A significant pay award was responsible for some of the increase in 1993/1994. On average, the increase in budget income in these schools was about 42 per cent 1993-1995. Non-budget income grew differently, with substantial increases in 1994/1995. This has enabled further growth in staff incomes, as more of the salary costs have been transferred to non-budget income. Average increases over the period were about 133 per cent.[9] Non-budget income thus represents a growing proportion of total income. It is now the major component in these schools and was more than 58 per cent of the total in 1995.

Budget income is largely fixed by a formula-funding allocation. This is interpreted when an overall increase has been decided on for the education budget each year. The formula is driven essentially by the number of staff (including pensioners) and the school enrolments. The rate of increase in the multipliers has been held stable over the last year, thus contributing to the shift in income between budget and non-budget expenditure.

As noted above, the non-budget income is derived from several main sources – tuition fees, contributions from enterprises and school businesses, donations, and balances and interest payments on these balances. Tuition-fee income is regulated by district, city and county guidelines. It varies between places. According to a document issued by Wenzhou Price Control Bureau, Bureau of Finance and Education Commission in August 1996, the official criteria of tuition fees and other charges for the Wenzhou area were as follows:

*Yuan/per student per term:*

| | | |
|---|---|---|
| Primary | 35 | 20 (for students from poor xiang) |
| Junior secondary | 60 | 40 (for students from poor xiang) |

*General senior secondary schools' tuition fees and other charges:*

| | |
|---|---|
| Wenzhou secondary school (high status) | 260 |
| Wenzhou No. 2 secondary school and Ouhai Key School | 240 |
| Ordinary senior secondary schools | 180 |

Much higher fees are charged to students from outside Wenzhou. Most urban schools are able to attract these students as there is considerable excess demand. In one of the case-study schools, for example, between 10 per cent and 15 per cent of all students are from outside the catchment area. These students pay on average Y5,600 to be enrolled for three years as an entrance fee and this generates about Y1 million per year in this case-study school – by far the largest part of the non-budget income. In Wenzhou city, entrance fees as high as

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[9] This average, which excludes one outlying school, biases these results upwards. With this school the rate of growth of budget income was about 68 per cent and of non-budget income 211 per cent.

Y100,000 are not unknown for entry to the most prestigious schools. This practice is formally illegal, but nevertheless widespread. Income from this source therefore tends to be reclassified as donations rather than tuition, or under a miscellaneous category. It is the major source of non-budget income for most of the schools in this case study.

Only one of the schools in the sample in Wenzhou has a school-run business. Most schools in this area have decided that it is difficult to run competitive businesses that are profitable, since they are surrounded by a very entrepreneurial community. The hypothetical benefits – e.g. tax-free status, ability to borrow money, etc. – are not compelling in Wenzhou, since the large informal economy effectively provides the same benefits to many household businesses. Unlike Beijing, rental income in the case-study schools is small. Most have very limited land and buildings available. Demand for space is much weaker than in Beijing and high rents are generally not available.

The balances held by schools appear to be growing. On the basis of the data available, income exceeded expenditure in the case-study schools by 12 per cent, 15 per cent and 29 per cent in 1993, 1994 and 1995, respectively.[10] In 1995, total balances accounted for about 13 per cent of total recurrent expenditure at the end of the fiscal year. The fiscal year does not coincide with the school year and income tends to be greatest at the beginning of the school year. Expenditure, on the other hand, is distributed throughout the year. Minimum balances may therefore be smaller than they first appear. Nevertheless, fiscal-year balances are increasing. Interest is earned on school-fund balances and contributes to income, though interest rates for short-term deposits are small.

## 4. Expenditure

There are two main classifications of school expenditure in China: staff expenditure on salaries, and non-salary expenditure. Non-salary expenditure is mainly used for general school running costs. School financial returns to the superior authorities distinguish between budget expenditure and non-budget expenditure under both these categories. The appendix contains details of sub-categories used. *Chart 8.3* shows budget expenditure by category and *Chart 8.4* non-budget expenditure.

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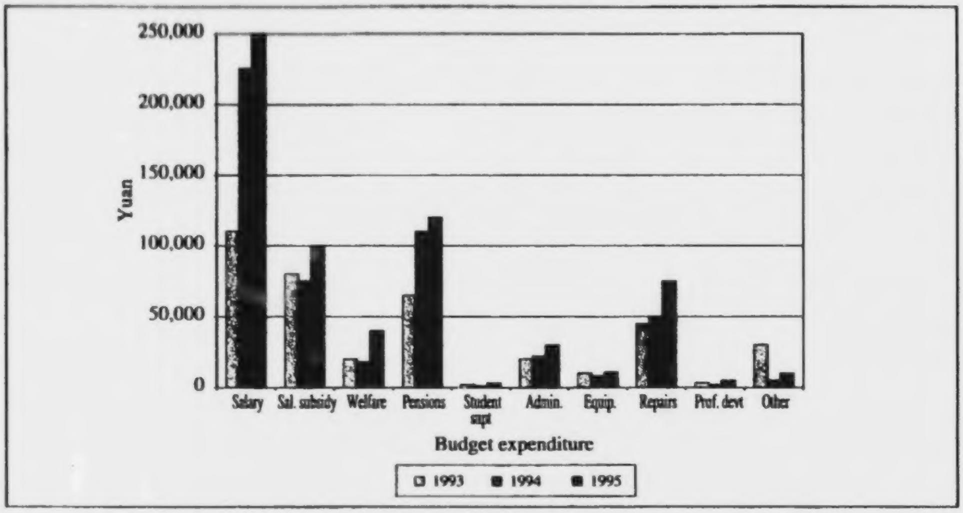
[10] Fiscal year.

Chart 8.3 Budget expenditure by category, 1993-1995



Thus budget expenditure is overwhelmingly salary related, with small amounts available for other purposes. The growth of salary contributions dominates this expenditure.

Non-budget expenditure can be classified under four overall headings – salary supplements and staff-welfare payments; school-improvement costs; administration and professional development; and other miscellaneous expenditure. The result of recent trends is shown in *Chart 8.4*. Non-budget expenditure is also predominantly concentrated on salaries and other benefits for teachers. The growth in salary subsidies in 1995 is evident.

Chart 8.4 Non-budget expenditure, 1993-1995

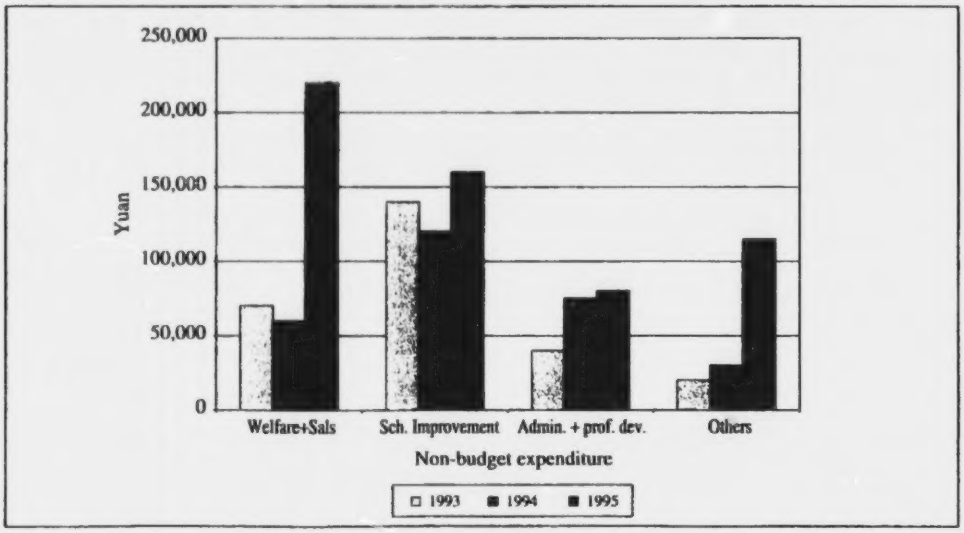
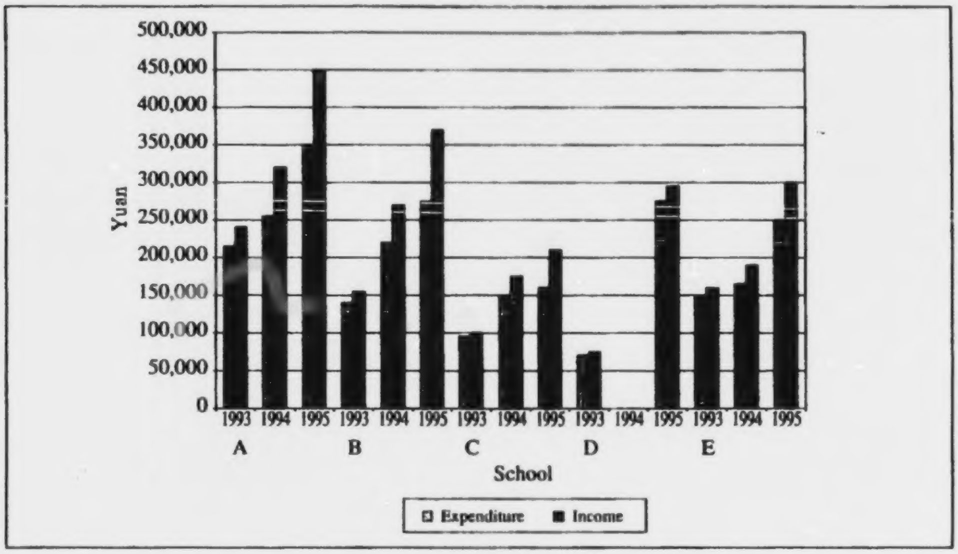


Chart 8.5 Total income and total expenditure, 1993-1995



A school-by-school analysis reveals that total income exceeded expenditure in all the case-study schools on which there were adequate data in every year (see *Chart 8.5)*. It is also true that the amount of surplus was growing from around 11 per cent to as much as 30 per cent in 1995.[11]

Salary expenditure appears to account for between 56 per cent and 81 per cent of total expenditure in the case-study schools and the proportion has been growing. It is clear that the bulk of salary increases have been funded from non-budget income. Most schools have seen the non-budget contribution to salaries grow by more than 100 per cent over two years. Expenditure on salaries from non-budget sources in five of the six schools was between 36 per cent and 45 per cent of total expenditure in 1995 and has probably risen since. Conversely, non-salary expenditure from budget sources fell sharply in most schools as a proportion of budget expenditure to between 5 per cent and 15 per cent.

Staff income as opposed to salary is available for four schools. The highest average income per teacher is over Y14,000 per annum per month, and the lowest Y8,600. Some of the difference is explained by the distribution of teachers according to seniority. The largest part of the differences arises from the amount of non-budget income to subsidize salaries. It is clear that these differences have been growing rapidly. The ratio of total income to budget income for salaries is over 1.8:1 in some schools, illustrating how much they have come to depend on non-budget income to supplement salaries in the past three years. *Table 8.24* shows income from different sources for four case-study schools. These figures can be compared with the average public-sector salary (Y6,296 in 1994) and the average salary of education-sector professional staff (Y6,197 in 1994).

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[11] Noting that this is a fiscal-year surplus not a school-year balance.

Table 8.24 Average incomes from budget and non-budget sources in Yuan, 1993-1995

| School | Year | Average annual income of all professional staff from the budget | Average annual total income from budget and non-budget sources | Ratio of total average income to budget income for salaries |
|---|---|---|---|---|
| A | 1993 | 4,284 | 5,186 | 1.2 |
| | 1994 | 7,009 | 7,639 | 1.1 |
| | 1995 | 8,077 | 14,705 | 1.8 |
| B | 1993 | 4,272 | 5,538 | 1.3 |
| | 1994 | 6,868 | 8,048 | 1.2 |
| | 1995 | 7,068 | 12,924 | 1.8 |
| C | 1993 | 4,470 | 6,869 | 1.5 |
| | 1994 | 6,153 | 9,514 | 1.5 |
| | 1995 | 6,750 | 13,350 | 1.9 |
| D | 1993 | 3,394 | 5,215 | 1.5 |
| | 1994 | | | |
| | 1995 | 5,488 | 8613 | 1.6 |

In principle, there is a limit to the amount of non-budget income that can be used to supplement salaries. The equivalent of an additional three and a half months' basic salary can be paid if the income is available to support it. Above this, a 66 per cent tax is supposed to be levied with the proceeds to the relevant administrative level. As with other tax legislation it is not clear that this is widely and effectively enforced.

In Wenzhou, costs per student are measured by four different methods:

(i) annual recurrent unit costs/student = (total annual expenditure – capital expenditure)/No. of students;
(ii) annual budgetary expenditure/student = expenditure (budget)/No. of students;
(iii) annual recurrent non-salary expenditure/student = non-salary expenditure/No. of students;
(iv) annual recurrent non-salary expenditure (budget)/student = non-salary expenditure (budget)/No. of students.

*Table 8.25* shows the unit costs of six sample schools for 1995. Overall unit costs per student vary from Y1,992 to Y1,010.[12] Non-salary expenditure is between 19 per cent and 43 per cent of the total. Non-budget expenditure can be as much as 64 per cent of the total.

Table 8.25 Unit costs of six sample schools by type in Yuan, 1995

| | (1) Total recurrent expenditure per student | (2) Total recurrent budgeted expenditure per student | (3) Total non-salary recurrent expenditure per student | (4) Total non-salary budgeted expenditure per student | Percentage non-salary expenditure 3/1 | Percentage non-budget expenditure (1-2)/1 |
|---|---|---|---|---|---|---|
| A | 1,992 | 1,090 | 496 | 145 | 25 | 45 |
| B | 1,660 | 1,012 | 310 | 147 | 19 | 39 |
| C | 1,526 | 735 | 312 | 69 | 20 | 52 |
| D | 1,010 | 608 | 243 | 119 | 24 | 40 |
| E | 1,805 | 648 | 780 | 13 | 43 | 64 |
| F | 1,083 | 522 | 438 | 30 | 40 | 52 |

## 5. Issues arising from the Wenzhou case study

A range of issues are raised by these case-study data. First, they confirm that two trends appear to be gathering momentum. Non-government funding is growing in importance as a source of secondary-school finance, and salary payments are occupying a greater share of total expenditure. The former may lead to greater disparities in income and expenditure per student between schools. The majority of schools in Wenzhou do seem to have benefited from the mobilization of increased resources. However, more remote schools and those in poor areas are unlikely to have improved their conditions relative to schools with access to substantial sources of additional revenue. A general increase in dependence on non-budget income has to be considered problematic for schools if they are located in areas where surplus income is scarce and economic activity relatively sluggish.

Drift towards greater proportions of salary expenditure may result in poorer rather than better learning conditions. If the consequence is smaller allocation to learning materials and to other inputs to the quality of the school environment, this is likely. Some safeguards are in place, which are designed to protect expenditure on learning quality.

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[12] School D only has junior secondary students and this is why its costs are low. School F has upper-secondary grades.

In Lucheng in 1994, all schools were required to transfer 40 per cent of non-budget income to the District Education Commission, which was returned as earmarked grants under different categories. The remaining 60 per cent was directed to be split between improving teaching conditions (60 per cent) and staff welfare (40 per cent). The arrangement in 1996 was that 10 per cent of non-budget income was to be passed on to the District Education Commission for earmarked allocation and the remaining 90 per cent allocated 60:40 to teaching conditions and staff welfare. In Pingyang the proportions are 70:30.

The State Council, State Education Commission, State Planning Committee and Ministry of Finance have jointly issued regulations concerning the charges that can be levied in different types of school. For the compulsory education period up to Grade 9 no tuition fees are permitted. The condition for other charges is that they should be restricted to a proportion of the school's non-salary budget as approved by the Provincial Government. It is intended that income from other charges should only be used to complement deficits in the school's non-salary expenditure. In general, senior secondary schools' and vocational schools' tuition fee rates should be fixed as a proportion of the unit cost per student and should be subject to the approval of Provincial Government. Thus, the tuition fee for an upper-secondary student is intended to be no more than 25 per cent of the unit cost per student. Students from poor families should be offered remission of tuition fees and other charges.

Second, the greatest proportions of non-budget income in Wenzhou arise from payments by students from outside school catchment areas. These payments are often classified as donations rather than tuition fees. Control over the level of these donations appears ad hoc as legislation is apparently ineffective. This clearly has some implications for access to secondary schools and patterns of future enrolment rates. In principle there is no direct link between higher payments by outside students and the achievement of universal access for all students, because primary and junior secondary are compulsory by law. The existence of outside students means that students from wealthy families can choose their schools by paying more money and students from poor families have no choice but to stay in local schools.

In Wenzhou, there is an informal understanding that only schools that enrol all local students first are allowed to take outside students. The permitted proportion is three classes for local students and one class for outside students. Schools in central city districts attract students from suburban towns and town schools take students from rural areas. This is due to the difference in quality between schools. Though unit funding from the government is approximately the same at the local level, other income and expenditure are not. It is clear that students with a poor family background and/or from remote rural areas in disadvantaged places are not likely to be enrolled as 'choice students'. This would seem to violate the principle of 'equal opportunity for all students'.

Third, government policy stipulates that compulsory education expenditure should increase faster than government recurrent income and budgetary expenditure per student should increase year on year. However, at the school level, government budget funding essentially depends on an incremental approach in which schools are guaranteed the previous year's funding, supplemented by an appropriate increase. The rate of increase is basically in line with the average rate of increase of the general government education budget. There is no direct link between school efficiency and government funding decisions. The government's control of school efficiency through the funding mechanism is still weak, except insofar as it places more and more of the burden on local communities to make up the difference between the budgeted contributions and actual expenditure.

Fourth, it is clear that the schools in the sample are unlikely to be typical of the broader range of schools. The case-study schools are typical of urban schools, most of which derive much of their off-budget income from 'choice' students and appear to enjoy a surplus of income over expenditure. Even poorer-quality urban schools attract 'choice' students from rural areas where there is a shortage of places at secondary level, especially for the upper-secondary cycle.

Fifth, the State Education Commission has issued a note on the principles of compulsory education provision, which makes it clear that the implementation of compulsory education is firstly the responsibility of the local government, which has a duty to provide adequate resources, including financial support and qualified teachers, for schools. All public schools within the compulsory education cycle are expected to adhere to the principles of 'free of tuition-fee charges', 'proximity enrolments' and 'equal opportunity'. The note suggests that no clear or disguised form of outside students are to be allowed at this level in the future and that there will be a deadline for schools which have outside students, to stop this arrangement in future. The suggestion is that if there are students who still want a choice of school, their options will lie in the private school system.

These case-study accounts from Wenzhou draw attention to some of the main dilemmas invoked by recent changes in policy and practice. The success of policy changes in increasing school income is evident in the schools studied. The disadvantages arising from increased emphasis on non-budget income are recognized. So also are the problems that arise from increased numbers of 'choice' students. Whether the proposed new conditions will succeed in providing secure and equitable funding for all schools remains to be seen. The immediate consequence for some schools which have enjoyed considerably enhanced funding may be a reduction in income as 'choice' students are reduced. It is not clear how the revenue foregone will be replaced in more equitable ways which benefit all schools.

## 6. Summary conclusions

The major benefits associated with the new systems of financing of secondary schools in China can be summarized under a number of dimensions. Schools which have some or all of the following characteristics are able to increase their income considerably: favourable location; land/buildings which can be rented; excess demand for places; and entrepreneurial management. This has resulted in substantial increases in expenditure per student in these schools. It has also meant that public funding has diminished as a proportion of the total, to the extent that off-budget revenue can be larger than that provided by the state. Amongst other things, this has enabled these schools to enhance teachers' total income, albeit that pensionable salaries have not increased much. It is argued that this enables these schools to attract and retain the most qualified and experienced teachers. The additional income raised is partly allocated to improve educational quality through greater spending on learning materials and classroom environment, though the larger proportion seems to go towards improving conditions for teachers. The new arrangements seem to have intensified competition between schools to attract students, since this has a direct effect on school income. It may have increased pressure on schools to improve quality in order not to lose students to other schools. It is clear that the emerging practice of recruiting students from rural and semi-rural areas into city schools is generating substantial amounts of income for some urban schools. It also seems to be the case that the ability of the local authorities to regulate fee payments by local and out-of-area students is limited.

The new freedoms to finance secondary schools from a variety of sources have resulted in several problems emerging. There are growing disparities in funding between schools which arise from location, inherited physical assets, academic reputation, and management quality. This means that the gap in expenditure per child at secondary level is rapidly widening. There is also concern that direct costs to parents are rising as schools charge higher fees and these are consuming rising proportions of family income. This also has an effect on the composition of enrolment and persistence in school. Access to secondary school, especially at the upper-secondary level, is becoming more and more linked to the ability of parents to pay. There is concern that schools that are not favourably located and cannot attract fee-paying students, may suffer deteriorating quality. Their ability to improve learning conditions is constrained by growth in public funding alone. There is a risk that some of their most effective teachers will move to schools that can offer greater rewards.

Other difficulties which have been noted are that some school leaders may overemphasize revenue generation at the expense of learning conditions, e.g. where sports facilities and buildings are leased out or sold, resulting in overcrowding, and where school run businesses begin to occupy much of the time of senior management. Similarly structured salary schemes that are related to teaching hours may be thought to encourage teachers to maximize income at the expense of quality. Lastly, there are concerns that auditing procedures are weak and that financial contributions may be being used to gain advantages in access to schools outside the regulations that have been established.

In conclusion, it can be seen from the case studies that an unusual degree of freedom has been given to schools to raise revenue and manage the resources of schools. The range of mechanisms adopted provides an illustration of what is possible. However, this system seems to have benefited institutions with entrepreneurial leadership and favourable conditions. It may have done little to extend access to secondary schooling to the majority.

# Chapter IX

# Secondary education financing in Costa Rica: recovering the initiative

*Francis Hutchinson with Keith M. Lewin*[1]

## Introduction

Costa Rica has been able to provide high levels of access to primary education for several decades. It also has a well-developed university education system. Paradoxically, enrolment rates in secondary schooling are not high compared to other countries at comparable levels of development and improved access to secondary schooling has stagnated. There are several reasons for the low enrolment rates at the secondary level. It appears that policy and budgeting choices have been made, especially during the economically strained 1980s, that have led to constraints on access and participation.

Costa Rica provides an interesting case to study in more detail, because it has a tradition of high performance on most social indicators and is widely regarded as an example of good government directed towards meeting developmental needs. It also confronts a challenge of how to increase secondary enrolment rates to similar levels to those in other developing countries with which it is competing for foreign investment.

This chapter analyzes the development of the secondary-school system to provide a fuller understanding of the factors that have influenced the evolution of secondary schooling. It is divided into five parts. The first will discuss the current Costa-Rican context and the importance of education in terms of the country's development. The second will explore how participation in secondary schooling has grown since 1950 and how key indicators of performance have evolved. The third section analyzes data on educational finance and expenditure to develop a picture of recent trends and constraints. The fourth examines what options are available which might lead to higher secondary participation rates and identifies some of the cost implications that might arise. The fifth presents the results of a simulation that projects forward educational costs for 15 years, on the basis of a number of different scenarios, to establish which alternatives might be financially sustainable.

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[1] This chapter was drafted by F. Hutchinson along the lines suggested by K. M. Lewin. It has been adapted and simulations added for inclusion into this book.

## 1. The Costa-Rican secondary education system

Primary and secondary education is free in Costa Rica and guaranteed by the state to all citizens. The secondary-school system has two main streams – academic with about 80 per cent of the students, and technical with the remaining 20 per cent. Both streams have a set of core courses, and then complementary courses specific to each. The secondary cycle is divided into two parts. Lower secondary covers the first three years of secondary for pupils with a nominal age range of 12-15 years. Enrolment is obligatory, but in practice attendance is not enforced. Students must successfully complete the third and final year in order to proceed to upper secondary, which is not obligatory.

Upper-secondary schooling takes place over two or three years, depending on the stream. Academic schools enrol pupils over years four and five of secondary; technical schools over years four to six. Pupils are nominally 16-18 years old, though significant numbers are over age as a result of repetition.

The major objectives of upper-secondary schooling are seen as being both to prepare graduates to study at university level and to equip school-leavers for the labour market. All students from the academic schools, and those from the technical stream, who wish to go to university, have to pass a set of nationally administered examinations, called the 'Bachillerato', at the end of their last year.

During the past 50 years, the state has provided the bulk of the education offered to its citizens and has met most of the costs from public funds. Private education is permitted and has grown during the past 15 years. It now provides school places for about 10 per cent of pupils at secondary level and is funded through tuition fees.

## 2. General context

Costa Rica's social development achievements are well known and the country stands out as one that has achieved high levels of performance on development indicators (e.g. the UNDP Human Development Index) at income levels below those of a significant number of other developing countries in the Americas. Literacy, life expectancy and income-distribution indicators suggest that Costa Rica has managed the development process effectively. The basis for Costa Rica's development strategy was established in the late 1940s and is asserted to depend upon an enlightened political leadership, a competent public sector, and an established consensus on key elements of social development. Garnier et al. (1994) argue that: 'social development was not seen by government authorities as an automatic result of economic growth or as something subordinate to it. Nor was social development seen as an end in itself, but as a necessary condition for consolidating economic growth and as a central characteristic of the type of society that they sought to build'.[2]

Access to education has always been seen as an integral part of the development process, both as an indication of successful development and as an investment for economic growth. It has consistently featured as a priority in government policy. Primary education was declared free and compulsory as early as 1869 and the state has made largely successful efforts to extend provision of basic educational services to all parts of the country. An indication of the historic commitment to education is that during the period of sustained economic growth from 1950-1979, the proportion of the government budget allocated to the education sector grew continuously and reached an impressive 5.7 per cent of GDP by 1979.

This has resulted in a relatively well-educated population, and this is demonstrated by various performance indicators. In 1995, the adult literacy rate was 95 per cent and the gross enrolment ratio in primary school was over 100 per cent (*Human Development Report*, 1998). The gross tertiary enrolment rate, at 32 per cent, is one of the highest in Latin America (*World Education Report*, 1998).

As the education system has developed, the economic base of Costa Rica has evolved and the characteristics of the labour force that school-leavers enter have changed substantially. Although the country is still reliant on traditional export crops like coffee and bananas for foreign exchange, industry and manufacturing have become increasingly important. In 1997, agriculture accounted for 18 per cent of GDP, and industry and services represented 29 per cent and 54 per cent of GDP respectively. Costa Rica is now the most industrialized country in Central America, with industry accounting for about half of all employment. Agricultural employment decreased to about 20 per cent in 1995 from 47 per cent in 1965.

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[2] Author's translation.

The relatively high levels of educational attainment of the workforce and the country's social stability have begun to attract inward foreign investment. Thus: 'the relatively skilled labour force, easy access to the Pacific and Caribbean coasts and political and social stability have attracted multinational corporations producing pharmaceuticals, textiles, plastic goods, electronics, beverages, and even computer services' (EIU, 1997a).

The government has courted skill-intensive investment to encourage export-led growth based on high value-added (and usually knowledge-intensive) products. During the past three years, computer companies such as ACER, Microsoft, and Intel have made sizeable investments in Costa Rica. Intel invested in a US $500 million microchip plant with the capacity to manufacture a third of the company's global production (EIU, 1997b).

However, future growth and a transition towards greater value-added production in the Costa-Rican economy could be constrained by substantial bottlenecks in the education system. While primary and tertiary enrolment rates are comparatively high, secondary enrolment rates are lower than those in many other countries at similar levels of development. Growth in industrial and service-sector employment, especially in jobs which depend on abstract thinking skills and knowledge most likely to be acquired from post-primary schooling, may be limited if participation in secondary is not increased. The World Bank (1993) argues that increasing the availability of secondary education, in addition to basic education, was a key part of East Asia's success in attaining high stocks of human capital. In addition, further expansion in higher education could be limited by the number of students succeeding in completing secondary schooling.

There may also be adverse consequences for equity and income distribution. Costa Rica is one of the more equitable societies in Latin America. However, if a large part of the population fails to complete secondary education, inequalities may widen. CEPAL (1996) argues that in Latin America it is necessary to acquire 10 or more years of education in order to have a better than 90 per cent chance of escaping poverty.

*Table 9.1* illustrates some comparisons between Costa Rica and other countries. Argentina, Chile, Mexico, and Uruguay were included in order to compare Costa Rica's performance with other Latin-American countries that have well-developed education sectors and are at a comparable income level. Guatemala was chosen to give an indication of the educational attainments in the other Central-American countries, and Korea and Malaysia were included to give an idea of the educational endowments of East-Asian countries that have been able to attract sizeable quantities of skill-intensive foreign investment.

Table 9.1 GNP per capita, percentage completing different levels of education and average years of schooling – selected countries, 1990

| Country | GNP per capita (current US $) | Completed levels of education among the population aged 15+ (%) | | | | Average years of schooling |
|---|---|---|---|---|---|---|
| | | No school | Primary | Secondary | Tertiary | |
| Argentina | 2,370 | 4.8 | 51.2 | 30.7 | 13.2 | 8.1 |
| Chile | 1,940 | 6.1 | 50.1 | 33.7 | 10.1 | 6.7 |
| Costa Rica* | 1,900 | 11.1 | 59.8 | 16.1 | 13.0 | 5.6 |
| Guatemala | 900 | 44.7 | 40.5 | 11.1 | 3.7 | 3.0 |
| Mexico | 2,490 | 13.7 | 42.8 | 35.0 | 8.5 | 6.7 |
| Uruguay | 2,560 | 4.6 | 49.6 | 35.5 | 10.4 | 7.1 |
| Korea | 5,400 | 8.0 | 16.1 | 61.9 | 13.9 | 9.9 |
| Malaysia | 2,320 | 19.4 | 45.4 | 31.8 | 3.3 | 6.0 |
| Median | 2,345 | 9.6 | 47.5 | 32.8 | 10.3 | 6.7 |

*World Development Report* (1992-) and Barro and Lee (1997).
*This is also largely consistent with data obtained from the UNESCO *Statistical Yearbook* (1996-).

Several conclusions can be made from *Table 9.1*. First, it can be seen that the majority of the countries in the group have GNP per-capita levels that range between US$ 1,900-2,500, with Costa Rica at the lower end. There are two outliers as Guatemala's income, at US $900, is considerably below this, and Korea's, at US $5,400, is considerably higher.

Second, with respect to average years of education, Costa Rica has a relatively less educated population than most of these countries. Costa Ricans have on average 5.6 years of schooling. Most countries in this group have between 6 and 7 years of education. Korea and Argentina have considerably more, and Guatemala considerably less. However, Costa Rica's average educational attainment is closer to the group average of 6.7 years than it is to Guatemala's endowment of 3 years. If foreign investment is to be attracted - which assumes higher rather than lower levels of educational endowment - then it is the countries with higher average levels of education in the labour force which are potential competitors, all other things being equal.

Third, Costa Rica has an atypical structure of educational output. It has the highest proportion of the population completing primary education (59.8 per cent), and a very high proportion of people who complete tertiary education (13 per cent). Only Argentina and Korea have a greater proportion of people who complete tertiary education. Yet, Costa Rica has the smallest percentage with complete secondary education (16 per cent), except for Guatemala, which has the lowest performance on this indicator. Costa Rica's rate is half of the median value of 32 per cent. Most countries in the group have the highest proportion completing primary, less completing secondary, and the least completing higher education. Korea has reached a higher level of participation, where most complete secondary.

It would also appear that Costa Rica invests at or above average levels of resources in education. With regard to public education expenditure as a percentage of GNP, it spent 4.5 per cent in both 1985 and 1995, versus a regional average of 3.9 per cent and 4.5 per cent respectively. In terms of public spending on education in relation to government expenditure, Costa Rica spent 22.7 per cent and 19.9 per cent of its budget in 1985 and 1995. This is significantly more than the regional average of 15.5 per cent and 14.5 per cent for those two years (calculated using *World Education Report*, 1998).

This implies that in spite of substantial public investment, the expected development is not occurring evenly at all levels of the system. Most worrying perhaps is the fact that progress in increasing secondary participation in Costa Rica has not been consistent. Secondary participation actually decreased during the 1980s. The gross enrolment rate fell from 62 per cent in 1980 to 49 per cent in 1988.[3] It also fell relative to progress in other countries in the region. Out of 17 Latin-American and Caribbean countries, Costa Rica was only one of three that experienced a decline in secondary enrolment ratios during the 1980s (Maldonado, 1994).

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[3] This topic has been the subject of some research. See: Reimers, 1990; Carnoy and Torres, 1992; and Montiel et al., 1997.

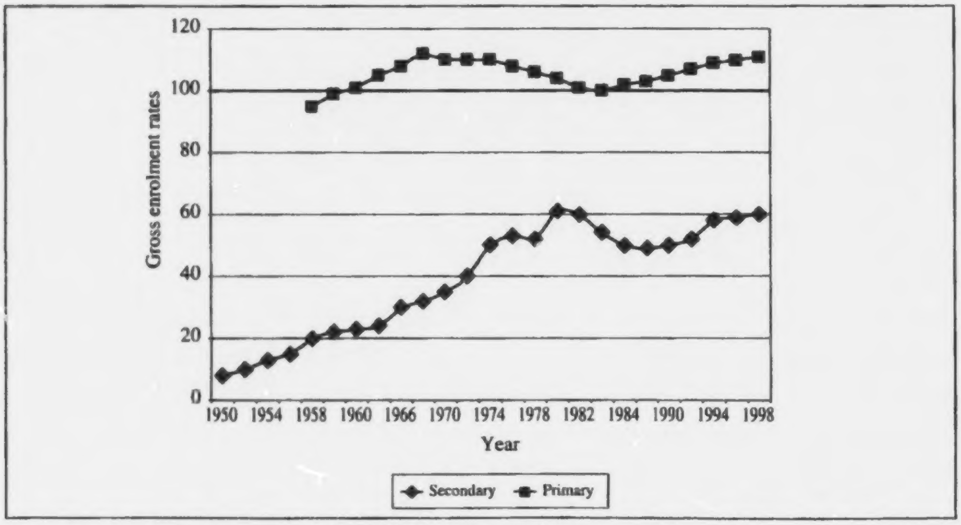
There is an obvious association of the setbacks in enrolment-ratio growth with the economic austerity which affected Costa Rica in the 1980s. However, it is not obvious why secondary-school participation should have been affected more than other parts of the education system. In a more general sense, the Costa-Rican social model has proven to be quite robust. Indeed, indicators of development such as literacy and life expectancy kept improving during the period of recession.

The next section examines the development of secondary enrolment rates in more detail and relates these to other key education indicators in order to deepen understanding of the patterns observed.

## 3. Enrolment indicators

*Chart 9.1* shows the development of gross enrolment rates (GERs) since 1950. From this it is clear that 100 per cent primary GER was reached by 1960 and exceeded this value up until the early 1980s. It fell back to around 100 per cent by the mid-1980s and then recovered. The secondary GER grew quickly and consistently from around 6 per cent to 62 per cent by 1980. This positive trend ended abruptly. Between 1980 and 1988, the rate fell steadily to 48.6 per cent before stabilizing and then growing again during the 1990s. By 1997, the GER had recovered to 60.9 per cent, which is considerably above 1988 levels, but still not at the level attained in 1980.

Chart 9.1 Primary and secondary enrolment rates, 1950-1997



Author's calculations based on MEP 1998b, 1991, 1969; Torres, 1974; and *Expansión del sistema educativo en Costa Rica,* 1997-.

*Table 9.2* shows how growth rates in the secondary gross enrolment rate have fluctuated since 1950.

Table 9.2 Growth rates (%) in secondary GER over five-year periods

| 1950-1954 | 1955-1959 | 1960-1964 | 1965-1969 | 1970-1974 | 1975-1979 | 1980-1984 | 1985-1989 | 1990-1994 | 1995-1997 |
|---|---|---|---|---|---|---|---|---|---|
| 19.0 | 9.7 | 3.0 | 7.1 | 9.3 | 2.8 | –2.9 | –1.1 | 3.1 | 1.7 |

It is clear that the systematic progress in increasing secondary enrolment rates from 1950-1980 was interrupted for a decade during which participation diminished. The growth trend was reversed. If growth had continued after 1980 along the trend established, the secondary GER would have reached 80 per cent by 1997 – a level similar to those found in Argentina and Uruguay.

It is very significant that Costa Ricans have had nearly universal access to primary education since 1960, but that after nearly 40 more years, much less than half of all students complete secondary school. Secondary school enrolment rates have grown with a lag over those at primary, as might be expected. However, growth in secondary enrolment rates appears to have stagnated for nearly 20 years. This suggests that structural factors may be significant, and that a bottleneck is emerging that will restrict the numbers of secondary-qualified leavers entering the labour market and continuing to study at higher levels.

Some insight into where the constraints lie can be obtained from an analysis of enrolment rates by grade. *Chart 9.2* shows these rates for the last year of primary (6th grade), and the 1st and 5th year[4] of secondary. Two things are striking. First, the gap between enrolment rates in 6th grade and the 1st year narrows and actually disappears by about 1990. From then on, enrolments in the first year of secondary are greater than they are in the last year of primary.[5] When there was a gap, this could have signalled the existence of a capacity and/or access problem. This now seems unlikely to provide much of an explanation for current patterns of enrolment rates.

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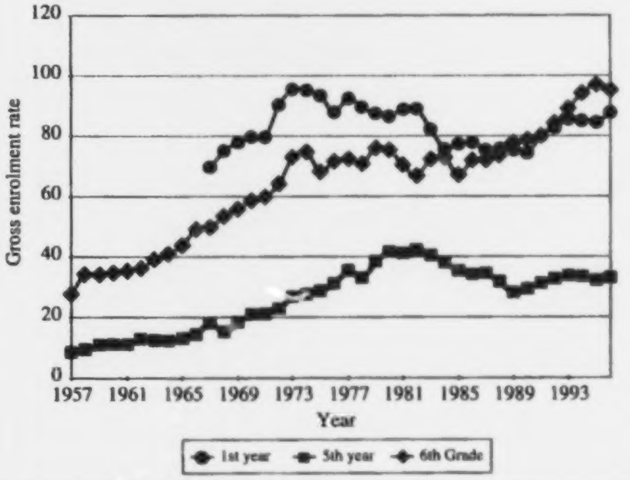
[4] Since 80 per cent of students finish secondary school in 5 years, this is taken as the last year of secondary.

[5] This could result from more repetition in the first year of secondary than in the last year of primary, or a result of primary school-leavers returning to enter secondary schools as over-age pupils. However, the fact that more are enrolled in the first year of secondary than the last year of primary suggests that availability of places in the first year of secondary is not a significant problem.

Second, there is a huge gap between the GERs for the 1st and 5th years of secondary school. This means that a large part of the population that enrols in the 1st year never reaches the 5th year. The chart shows that enrolment rates in the different years of secondary school increase at similar rates from 1950 to 1980. From then on, they diverge rapidly. By 1996, 95 per cent of those completing primary were enrolled in the first year of secondary. Only about 30 per cent of the relevant group succeeded in reaching the fifth year of secondary school.

Chart 9.2 Enrolment rates, 1957-1996



Author's calculations based on MEP 1998b, 1991, 1969; and *Expansión del sistema educativo en Costa Rica*, 1997.

The data imply that the main problem of secondary enrolment in Costa Rica is essentially one of retention rather than access. The question is what are the factors that might be associated with attrition during the secondary-school years and why does it appear to have reached higher levels than in some periods in the past? A possible explanation is that education in secondary schools is of doubtful quality. If this were true, and quality was thought to be declining, this might have an adverse impact on effective demand.

Some indicators of efficiency, which are proxy indicators of aspects of quality, seem to indicate deteriorating performance. In 1980, about 47 per cent of students completed their secondary education in five-eight years and over half of them dropped out – usually before completing lower secondary. In 1994, the percentage of children completing their secondary education fell to 41 per cent and those dropping out climbed to almost 60 per cent (MEP, 1996).

Data on pass rates (*Table 9.3*), repetition (*Table 9.4*), and drop-out (*Table 9.5*) provide insights into other aspects of effectiveness and quality. First, it can be seen that performance is problematic on most indicators. The pass[6] rate has rarely climbed above 70 per cent and is often below 50 per cent. This suggests that the performance of up to a half of all pupils falls below acceptable levels. If this is so, it implies that school quality is insufficient to assure many learners succeed in mastering the competences the curriculum specifies. Repetition and drop-out rates average over 10 per cent in each year of secondary school. The drop-out from the first year often exceeds 20 per cent, suggesting a mismatch between the expectations and capabilities of pupils and the ability of schools to successfully manage learning.

Second, performance has deteriorated, most strikingly during the 1980s. The 1970s appears to have been the period when most indicators show the highest performance. In general, the levels achieved then do not appear to have been reached in either the 1980s or 1990s. The average pass rate exceeded 70 per cent[7] in the early 1970s and has since deteriorated to around 50 per cent. The greatest decline occurred between 1975-1979 and 1985-1990, when it fell from 66 per cent to 54 per cent. The repetition rate has climbed from 10 per cent (1980-1984) to 13 per cent (1995-1997). Drop-out has increased from 12 per cent in the late 1970s to 15 per cent in 1995-1996.

There is a common pattern across these indicators when analyzed by academic year. Generally, the first year has had the highest rates of repetition and drop-out and the lowest pass rates. The poor values of performance indicators in the first year are closely followed by the second year and then the fourth year. The third and fifth years have typically had the best performance indicators. This is not accidental. It is significant that the first and fourth years are the beginning of lower and upper secondary respectively. The statistics show that in 1996, almost a quarter of all students in the first year dropped out, and almost a fifth of them repeated. This further illustrates the seriousness of the retention problem.

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[6] The pass rate used in this article refers to those students who have passed the requisite coursework and examinations by the end of the academic year. It does not include those students who re-take examinations and then pass.

[7] The surge in pass rates during the 1970s was the result of a policy to eliminate a bottleneck in the system by pushing people through rapidly (Dengo, 1995). Once this was done, the standards were raised again, as evinced by the fall in the pass rate.

Table 9.3 Average pass rates over five-year periods for different grades in secondary school

| | 1967-1969 | 1970-1974 | 1975-1979 | 1980-1984 | 1985-1989 | 1990-1994* | 1995-1997* |
|---|---|---|---|---|---|---|---|
| Overall | 56.2 | 74.2 | 66.2 | 59.7 | 53.6 | 55.6 | 50.1 |
| 1st year | 55.6 | 82.6 | 95.0 | 70.2 | 49.6 | 49.2 | 42.5 |
| 2nd year | 53.5 | 80.3 | 50.6 | 51.2 | 52.1 | 54.8 | 49.0 |
| 3rd year | 53.4 | 62.5 | 56.9 | 57.4 | 56.4 | 61.9 | 55.7 |
| 4th year | 56.9 | 58.4 | 51.4 | 50.8 | 47.4 | 50.3 | 45.1 |
| 5th year | 68.2 | 76.0 | 69.1 | 67.1 | 62.5 | 71.4 | 65.8 |

MEP, 1994, 1991; and *Aplazados, aprobados, y reprobados en el sistema educativo*, 1997.
*Academic Day Schools only.

Table 9.4 Average repetition rates over five-year periods for different grades in secondary school

| | 1980-1984 | 1985-1989 | 1990-1994 | 1995-1997 |
|---|---|---|---|---|
| Overall | 10.2 | 11.9 | 12.4 | 13.0 |
| 1st year | 6.9 | 15.7 | 16.2 | 17.5 |
| 2nd year | 15.4 | 14.7 | 12.8 | 13.3 |
| 3rd year | 10.4 | 11.9 | 9.7 | 9.3 |
| 4th year | 11.3 | 14.0 | 12.4 | 13.2 |
| 5th year | 5.0 | 6.9 | 5.1 | 5.3 |

*Source:* MEP, 1994, 1991; and *Repetición en el sistema educativo*, 1997.

Table 9.5 Average drop-out rates over 5-year periods for different grades in secondary school

| | 1964-1969 | 1970-1974 | 1975-1979 | 1980-1984 | 1985-1989 | 1990-1994 | 1995-1996 |
|---|---|---|---|---|---|---|---|
| Overall | 12.4 | 13.2 | 11.5 | 14.1 | 15.2 | 14.0 | 14.5 |
| 1st year | 19.2 | 16.4 | 15.1 | 20 | 22.6 | 21.9 | 24.4 |
| 2nd year | 9.6 | 10.8 | 14 | 17 | 13.6 | 11 | 10.9 |
| 3rd year | 7.4 | 14.2 | 9.3 | 11.5 | 11.8 | 8.5 | 8.4 |
| 4th year | 8.3 | 11.7 | 9.7 | 12.7 | 14.5 | 13 | 13.7 |
| 5th year | 5.2 | 9.4 | 4.6 | 6.4 | 7.7 | 7.2 | 7.6 |

*Source:* MEP, 1994, 1991, 1968; and *Deserción en el sistema educativo*, 1998, 1997.

Third, it is plausible that there is a link between low performance and propensity to drop out. At secondary level, there may be significant opportunity cost to remaining in school and there are certainly direct costs which fall on pupils and their families. If pupils' performance is poor and the chances of successful secondary completion low, drop-out may become more likely. Over 40 per cent of those who start do not complete the first three years of secondary (*Table 9.5*). This suggests that the system is very inefficient and that pupils are inadequately prepared and supported to meet the demands of secondary schooling. Research done by Solís and Rodríguez (1995) shows that there could be problems with the current structure. Interviews with drop-outs revealed that they thought there were too many subjects and that the workload was excessive. Teachers also cited too much coursework as a factor in students deciding to drop out. Clearly, if some part of the problem is due to low pupil performance exacerbated by poor school quality, attempts to reduce attrition in secondary schools must address issues of quality and the appropriateness of the curriculum. Effective demand may also diminish if perceptions of declining quality have a basis in fact.

## 4. Educational financing and expenditure patterns

This section explores how government investment in education has developed. It is important to remind the reader of the wider context in which the education system has evolved in Costa Rica. This conditions the factors that are likely to influence decisions made by students to enter and remain in secondary schools.

In brief, Costa Rica enjoyed a long and sustained period of economic growth from 1950 to 1979. Between 1980 and 1982, the country experienced a serious economic crisis and GDP per capita lost about 20 per cent of its value (DGEC, 1997). Recovery began in 1983, but the levels of GNP attained in 1979 were not surpassed until 1993.

This economic crisis had a number of direct social consequences. Poverty more than doubled between 1977 and 1983 and climbed from 13 per cent to 30 per cent[8] (World Bank, 1990). Similarly, the unemployment rate also increased from 4.5 per cent in 1978 to 9 per cent in 1982 (DGEC, 1998). As a result, disposable incomes fell in many households during the recession.

Reimers (1990) suggests that the decline in the number of students in secondary education and in the secondary enrolment rate may have been due to more adolescents entering the labour market earlier, attempting to supplement declining family income. It appears that non-heads of household increased their participation in the labour force during 1979-1982. During 1981-82 double the amount of people were entering the labour force for the first time as compared to 1979-1980.

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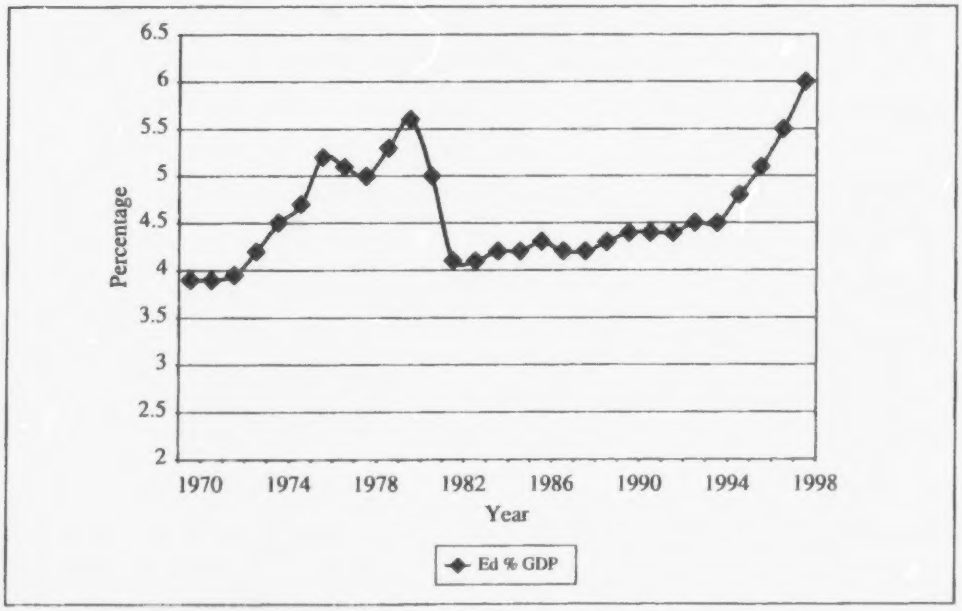
[8] Calculated in terms of access to the basic consumer bundle.

Public expenditure on education in Costa Rica has generally been high compared to similar countries in the region. *Chart 9.3* shows how educational expenditure as a proportion of GDP has varied over the past 40 years. In summary, spending increased consistently from 1950 to 1979, growing from 1.3 per cent to 5.7 per cent of GDP, coinciding with the country's prolonged economic growth. Concurrent with the economic crisis, expenditure fell to around 4.2 per cent during 1979-1982. Thereafter it remained stagnant until 1996, when it began to rise again, reaching 6 per cent in 1998.

In terms of educational expenditure as a proportion of the total public budget, spending on this rubric was above 25 per cent during most of the 1970s – reaching nearly 30 per cent in 1979. It then fell continuously until 1986, with the exception of a brief recovery in 1981-1982, to stabilize at around 20 per cent (MEP, 1991; CONARE, 1998).

These patterns indicate that, overall, the Costa-Rican Government has prioritized educational expenditure. It has allocated relatively large shares of GDP comparable with the highest levels found elsewhere. The proportion of the government budget has fallen, but remains high compared to most countries in the same region.

Chart 9.3 Educational expenditure as a percentage of GDP, 1970-1998



Montiel et al., 1997; Chavarría et al., 1998.

## 5. Expenditure by level

It is of interest to investigate how allocations by level have changed.[9] These are shown in *Chart 9.4*, which illustrates how secondary investment has fluctuated. During the 1960s, primary education[10] dominated educational expenditure, accounting for an average of 67 per cent of the budget. Secondary and tertiary levels both received around 17 per cent of the total. Secondary-education expenditure began to grow and by 1967-1969 it received 21 per cent of the total. This trend continued until 1980 when secondary was 33 per cent of the total, outstripping university expenditure and approaching the amounts allocated to primary. Tertiary education also grew as a proportion and reached over 20 per cent. As a consequence, primary education spending decreased to 50 per cent of the whole.

The 1980s tell a different story. Secondary education's share fell consistently from 1981-1986 and levelled off at 22 per cent for the rest of the decade. Primary education spending continued to decline until it diminished to 38 per cent of the total in 1984, where it remained until 1988-89. In contrast, tertiary education spending grew tremendously, outstripping secondary education in 1981 and primary education in 1985. By 1986, it was 40 per cent of total expenditure.

During the 1990s, primary education again accounted for the largest proportion of the budget, averaging 43 per cent. Secondary education received 22-25 per cent until 1997, when it jumped to 29 per cent – accounting for more than tertiary education for the first time since 1980. University education, for its part, fell from 33 per cent in 1990 to 27 per cent in 1997.

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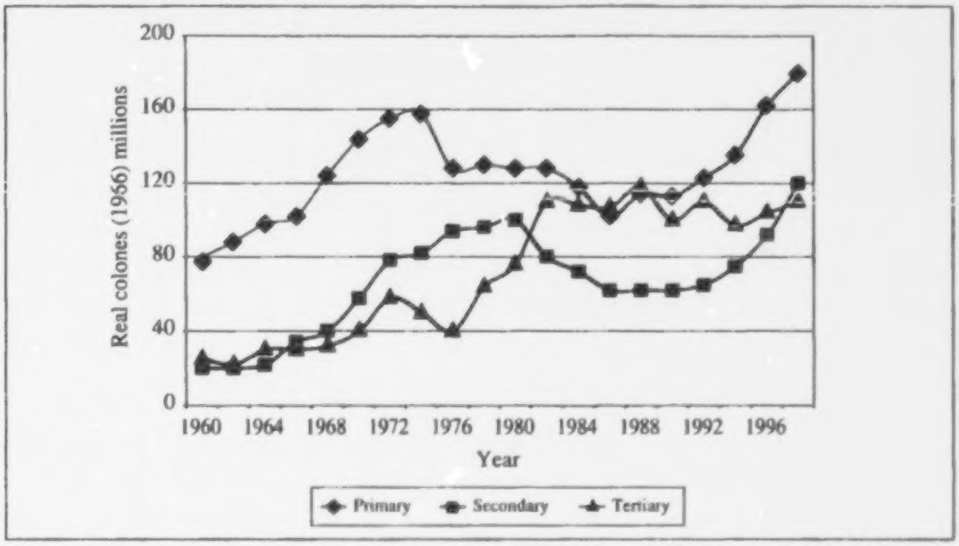
[9] Financial data are very irregular, thus this section depends on a variety of sources, mostly primary but some secondary.

[10] This also includes pre-school, which does not receive a significant portion of the budget. It grew from 2 per cent to 4 per cent of the total budget during 1980-1996. For more details see Montiel et al., 1997.

Chart 9.4 Educational expenditure by level, 1960-1997



Author's calculations based on Torres, 1974; CONARE, 1998; and *Memoria anual: liquidaciones cruzadas ajustadas*, 1970-→1997-.
Deflator: Central Government Expenditure from Banco Central de Costa Rica, 1997, 1995, 1986.

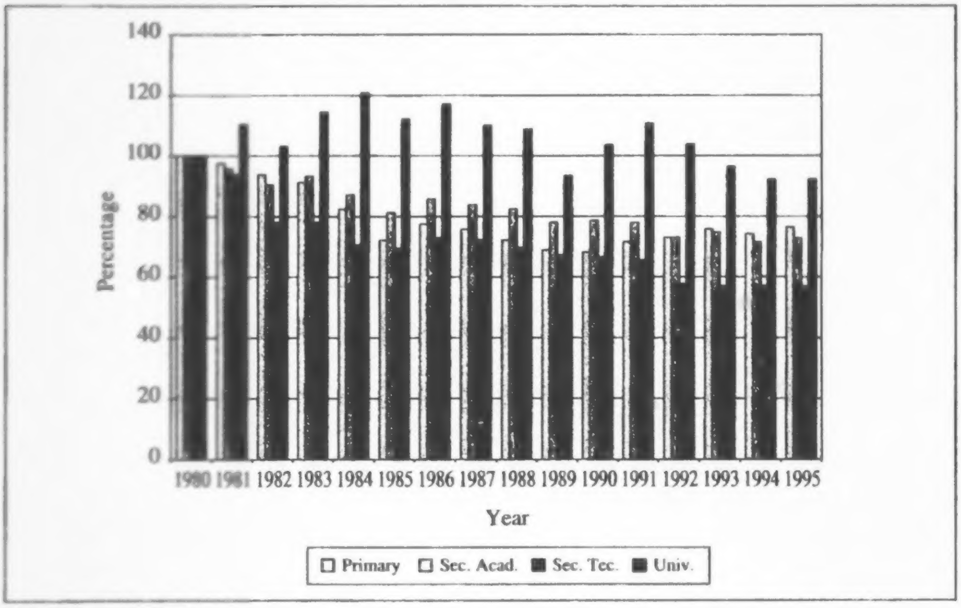
The fortunes of the different educational levels have varied. Primary education has been historically prioritized, on average receiving the bulk of education spending. Secondary education enjoyed its highest proportion of funding during the 1970s, only to suffer large cuts during the early 1980s and a stagnant level of funding until 1996. Spending on tertiary education climbed rapidly in the late 1970s and even more so during the 1980s. It then fell in relative terms in the 1990s.

There are many reasons for the patterns identified above. The first is the impact of different political priorities at different points in time. Over most of the period, primary has been regarded as a priority and funds have been allocated accordingly. During the 1970s, secondary was favoured for a period and its share increased. Second, the effects of recession and cuts in public expenditure in the 1980s were influential and particularly affected pre-university education and new public works (Montiel et al., 1997). Third, higher education has benefited from an earmarked source of funding reliant on proceeds of a specific tax, which has shielded it from budget cuts. In addition, the demand for funds for further education increased during the 1970s, as the number of universities grew from one to four.

## 6. Expenditure per capita

Expenditure per student has also been changing in ways that have implications for participation in secondary schooling. *Chart 9.5* shows the evolution of per-capita expenditure at the primary, secondary and tertiary levels since 1980. Expenditure per student at pre-university level fell steadily during the 1980s and early 1990s. During this period, it lost around 25 per cent of its value in the case of primary and academic secondary and 45 per cent in the case of technical secondary. In contrast, university per-capita spending climbed quickly during the early 1980s, reaching 120 per cent of 1980 levels in 1984. Higher education spending per capita was better protected from reductions than other levels in the 1990s.

Chart 9.5 Per capita spending by level relative to 1980



Montiel et al., 1997.

It is important to note that unit costs at secondary and primary levels stand in a low ratio to each other of 1.5:1.[11] Secondary-school places are not relatively much more expensive than primary places. Excessive unit costs at secondary are therefore not an obvious constraint on higher secondary participation. Higher-education places are about 5.6:1 times more expensive than primary-school places, a ratio which is above average for Central and South America, but much lower than in Africa.

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[11] Calculated for 1995 on the basis of enrolment rates (Expansión del sistema educativo en Costa Rica, 1997-) and expenditure by programme (Memoria anual, 1995-).

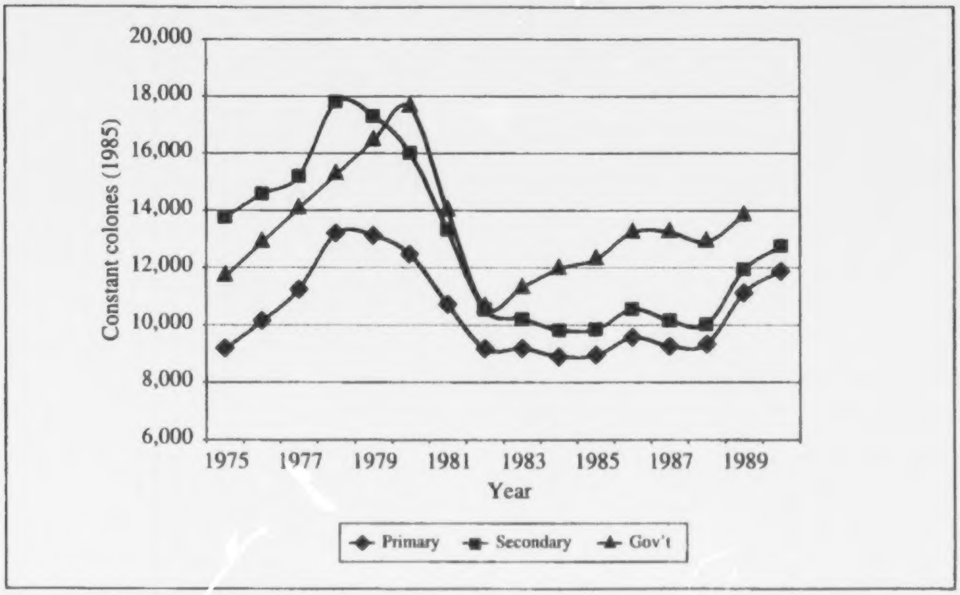
## 7. Recurrent expenditure

Costa Rica has traditionally spent a high proportion of resources on recurrent expenditure at the expense of capital expenditure at the pre-tertiary level. During the period 1974-1997, recurrent expenditure consistently represented between 90-95 per cent of the total budget (*Memoria anual*, 1974, 1997). Capital spending averaged about 4.6 per cent, but shrank over time.

High levels of recurrent spending are visible before the 1980s budget cuts, with very modest proportions allocated to capital spending and to educational materials. The crisis of 1980 made the situation worse. Predictably, capital spending shrank relative to current spending at the same time as the overall education budget shrank. These budgeting decisions had a definite impact on the quality of the education in the public system. Sanguinetty (1988) notes that the budget cuts were designed so as not to affect employment levels. As a result, cuts fell disproportionately on the infrastructure and facilities that teachers had to work with and adversely affected their motivation. While few staff were fired, real salary levels went down considerably.

*Chart 9.6* depicts the evolution of primary and secondary teachers' wages as well as those of the average government employee in real terms during 1975-1990. Several observations can be made. First, all groups suffered a substantial decline in their wages in 1982. However, teachers' wages, unlike those of other government employees, did not begin to recover immediately. Their wages remained stagnant until 1989, when they began to rise. Second, the wages of primary and secondary teachers converged over time. In 1978, secondary teachers were the better-remunerated group, and they earned some 24 per cent more than primary teachers. By 1990, the difference was only 7 per cent.

Chart 9.6 Teachers' salaries, 1975-1990



Carnoy and Torres, 1992.
Note: Salary for average government employees extrapolated for years 1976-1979 by author.

The decline in wages relative to pre-crisis levels, and also relative to other professional groups, seems to have been translated into a shortage of qualified teachers. Hernández states that: 'different problems such as low salaries, the loss of prestige relative to other professions, demotivating working conditions, and the possibility of early pensions, have resulted in a shortage of teachers from the 1980s to the present' (author's translation, 1998:18). In order to compensate for this, unqualified staff have been hired.[12] From 1984 to 1993, the number of unqualified teachers rose from 15 per cent to 25 per cent (*Personal total que labora en instituciones de educación regular*, 1997).

The increase in unqualified teachers has been accompanied by a notable shortening of the academic year, which shrank by 16 per cent in 1981, falling to 177 days from 211 days in 1980. During the 1981-1995 period, the length of the school year oscillated between 167 and 181 days (MIDEPLAN, 1998a). This shortening of the school year may have had a marginal effect on some non-salary and non-teaching salary expenditure, but this is unlikely to be substantial. It may have had a significant effect on quality, or at least outcomes, since students experience more than 20 per cent less active school days now than in the past.

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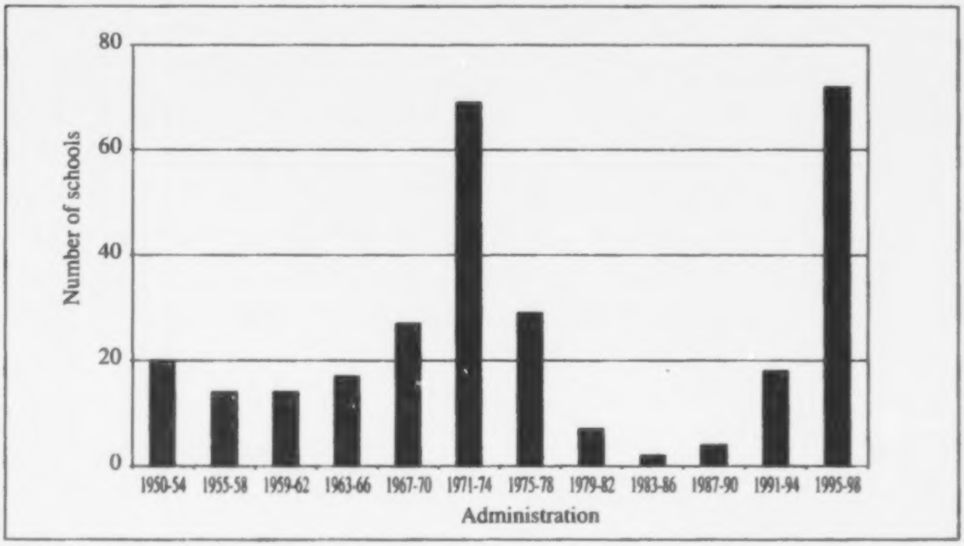
[12] This may also be done in order to hold down recurrent costs, as unqualified teachers are cheaper. See Carnoy and Torres, 1992.

The shrinking amount of resources for non-salary spending has also meant shortages in teaching materials. A report from the World Bank (1991) indicated that only 50 per cent of students in primary school and lower secondary had textbooks. Basic teaching materials were in short supply, and there was an 'almost total lack of modern equipment' in upper secondary.

Expenditure on maintenance and infrastructure also suffered during the 1980s (ibid.). *Chart 9.7* below shows the number of schools built during each administration. There was a trend of sustained construction of schools from 1950-1970, which shot up in 1971-1974. This decreased during the late 1970s, before falling into a tremendous trough during the 1980s. It began to recover in the early 1990s, and there was a huge increase from 1995-1998.

Chart 9.7 Secondary schools built by administration



MIDEPLAN, 1998a

Part of the explanation for changing patterns in participation may be related to the extent to which the financing of secondary education has become more dependent on the private resources of families. Carnoy and Torres attribute the decline of secondary education participation during the early 1980s to 'the relatively high fraction of total schooling costs borne by parents at this level of education' (1992:34). Their research found that the high direct costs such as uniforms, textbooks, stationery, contributions for teachers' supplies, and transport were onerous. The authors calculate that a family, even without transport costs, would have to spend almost as much as the public spending per student in academic secondary education and that the private direct costs for one student could represent 44 per cent of an average monthly income. This is compounded for families with more than one child and/or with scarce resources. This is supported by evidence from Solís and Rodríguez (1995), who found that 77 per cent of drop-outs cited the distance to the nearest school as a factor in their decision to leave school.

Before proceeding to assess the options for increasing participation at the secondary level, it is useful to recapitulate the findings discussed up to this point. It would appear that secondary education has often been underfunded. The priority, in a financial sense, was primary education up until 1980. Since then, university education has come to absorb proportionately greater amounts of the education budget.

This situation was made worse during the 1980s by factors both external and internal to the education system. In terms of external phenomena, poverty and unemployment increased substantially during this period. This could have affected the access of certain socio-economic groups to the education system by making the income foregone unaffordable. This period was accompanied by larger numbers of adolescents entering the labour market.

In terms of factors endemic to the education system, the general budget cutbacks were associated with policy choices that appear to have affected performance and access. In the first instance, a significant amount of direct educational costs were transferred to families at a time when disposable income was reduced. Concurrently, the quality offered by the education system appears to have suffered from budget reductions. This resulted in less availability of pedagogical materials, reduced class-time, and greater numbers of unqualified and demotivated teachers. The internal efficiency of the system decreased and this may have lessened the attractiveness of secondary education as an investment.

## 8. Options to increase participation

This section examines a range of options which might have a positive effect on the participation rate in secondary schools and explores some of their cost implications.

In principle, more resources to increase secondary participation can come from four main sources. These are increased overall budgetary provision, a redistribution within the education budget, improved internal efficiency and restructuring of provision to allow more participation for similar resource commitments, and greater contributions from private and community resources outside the public budget.

The first and last of these options are constrained. Overall, educational expenditure is high. Costa Rica has a long tradition of high levels of social spending. Most recently, the government has promoted a change in the Constitution, which was put into effect in 1998. This unusual clause stipulates that the state must spend a minimum of 6 per cent of GDP on education every year. This should result in raising spending to historically unprecedented levels that are about 33 per cent higher than the Latin-American average. This is probably close to the upper limit that is feasible, since few countries spend more. Thus, though additional small increases in overall expenditure as a percentage of GNP are possible and could be targeted on increasing the resources for secondary schools, large increases are not likely to come from changes in overall allocation.

In the case of the last option, expenditure at the secondary level could be increased through various kinds of cost recovery. However, the Constitution stipulates that the state has to provide education free of charge. This clearly puts political and practical constraints on the kinds of contributions that may be invited. It is also plausible that any rise in the direct costs of secondary education would affect participation negatively. This is most likely amongst students with the least household resources, who will constitute the majority of those who currently fail to complete secondary schooling. It is possible that modest increases may occur in the proportion of private schooling at secondary level. If this happened there would be some savings for the public budget that could be used to improve participation and quality in public secondary schools. However, it is not clear how much scope there is for such developments.

## 9. Redistribution

There may be more scope for various kinds of redistribution of the resources available to support educational growth. It is evident from the analysis above that public subsidies for education are unusually skewed towards higher education. In contrast, per capita and total expenditure on secondary-school students is relatively low. To shift some resources towards expanded secondary schooling should have positive effects on both equity and efficiency. In terms of equity, secondary education expenditure is more progressive than university spending. Tertiary expenditure has been very regressive. The richest 20 per cent of families benefited from 43 per cent of public spending at the tertiary level in the 1980s. Conversely, the poorest 40 per cent received only 13.5 per cent of this kind of subsidy support. Secondary education seems to have been comparatively neutral, although the middle 60 per cent of families benefited at the expense of both the poorest and the richest by 20 per cent (*Table 9.6*). Primary education is very progressive in terms of the benefits to the relatively poor. However, the GER is already over 100 per cent at primary. More expenditure at this level to improve quality could be beneficial for both primary (improved quality and outcomes) and secondary (less need for remedial work in secondary and lower drop-out related to poor achievement). With low and static enrolment rates at the secondary level, there clearly is a case for directing any redistribution of the education budget towards secondary expansion and quality improvement.

Table 9.6 Distribution of government education spending by family income (1986)

| | Total | Primary | Secondary | Tertiary |
|---|---|---|---|---|
| 20% poorest families | 24.4 | 30.1 | 17.8 | 9.5 |
| 2nd quintile | 22.7 | 27.0 | 21.4 | 5.0 |
| 3rd quintile | 20.9 | 21.5 | 23.1 | 13.5 |
| 4th quintile | 17.4 | 13.5 | 21.2 | 28.9 |
| 20% richest families | 14.7 | 7.9 | 16.5 | 43.0 |

Trejos and Sauma, 1986, in Garnier, 1991.

The ratio of unit costs of university to secondary places is about 1: 3.9, indicating that each university student consumes as much public subsidy as approximately four secondary students. If half of the tertiary education budget were redirected to secondary education, this would result in a 65 per cent increase in spending at this level – or, put in other terms, funding for an additional 118,000 secondary-school students at average unit-cost levels[13].

At present, government funding accounts for 80 per cent of the total revenue of the public universities, and the remaining 20 per cent comes from fees and the sale of services to third parties. There is probably scope for reducing the level of public subsidy over a period of time without necessarily damaging quality or access. In 1988, no courses in the biggest public university had fees that covered costs (Montiel et al., 1997). The private demand for further education is booming and in 1996 this sector catered for 29 per cent of students.

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[13] Possibly more, to the extent that marginal costing applies. The total secondary school-age cohort was about 360,000 in 1995 (World Education Report, 1998-).

However attractive reductions in public subsidy to higher education may be, university spending has been constitutionally guaranteed and financed for some time through the proceeds of specific taxes. Any change to the current structure of education financing would have political and legal implications that might make for a protracted process. The underlying point, namely, that secondary participation is low and that the public costs of the secondary-school system have been less than those of the public-university system, poses a challenge. The existing balance of public investment, which is regressive in terms of family income, and which appears to be constraining supply, may not represent the most appropriate allocation of resources.

## 10. Internal efficiency

Increases in internal efficiency of various kinds offer scope to meet the resource implications of secondary expansion in Costa Rica. First, there is the issue of teachers' salaries. In this case, the evidence suggests that secondary-school teachers are suffering from a loss of prestige and a decline in salary levels relative to other professions. In 1978, average secondary teachers' salaries were 24 per cent above those of primary teachers. By 1990, this difference had narrowed to 7 per cent and the salaries of both were significantly below those of other professional groups. There would seem no scope for a real reduction in salaries and a case for their enhancement if secondary school quality and associated retention rates are to improve. If qualified secondary-school teachers' salaries were increased to their pre-crisis level in relation to primary teachers, this would entail an increase of about 12 per cent in the budget. One way of covering this cost would be to allow the pupil/teacher ratio to increase from 19.4, which is quite low by international standards, to around 23. This would generate a saving of around 15 per cent, essentially cancelling out the cost of the salary rise.

It is also attractive to increase the proportion of qualified teachers, on the assumption that they are more likely to have a long-term commitment to secondary school improvement and more competence in teaching effectively. Unqualified teachers are paid approximately 15 per cent less[14] than those with the appropriate qualifications. They represent about 25 per cent of the teaching staff. This translates into a saving of around 4 per cent over the salary bill for a fully qualified teaching force. This seems a small cost saving for such a large proportion of untrained and unqualified teachers. If trained teachers are more efficient and as a result repetition falls, the benefits of ensuring all teachers are qualified could easily outweigh the additional salary costs.

Currently, repetition rates average 17 per cent in the first year of secondary, and are above 10 per cent in most subsequent years. This entails a significant expense as these repeating students must pass through a failed year at least twice. It is unclear what educational benefits accrue where repetition exceeds 20 per cent of the students, as it must do in many schools in the first year of secondary. If repetition were to be abolished, this would translate into a saving of around 12 per cent of the budget at the same enrolment level. This, in turn, would allow more students to proceed to higher grades, assuming an appropriate curriculum was available for their tuition.

Several other types of intervention would increase costs, but could be seen as cost-effective if they produced benefits in achievement and reduced drop-out. These mostly involve reducing the direct costs of participation. It is clear that high direct costs of secondary schooling can act as a disincentive for significant numbers of students. These costs come in several forms. Buying textbooks has traditionally been in the hands of parents. Existing studies indicate that shortages of textbooks are widespread. There is much evidence of the effects of textbook provision on achievement. It seems probable that an investment of 2-4 per cent[15] of the current secondary school budget would be enough to provide textbooks in all the main subjects in each year. If this resulted in higher levels of achievement and less repetition, this would cover much of the cost.

Generally, transport to and from school must be paid for by students' families, though the state provides transportation for some students in rural areas. Excessive distance to school was the most cited reason among drop-outs for their decision to leave the system (Solís and Rodríguez, 1995). A larger proportion of these costs might be borne publicly in areas where distances are substantial and where drop-out seems closely associated with distance.

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[14] Based on the difference between a qualified and unqualified primary-school teacher, Carnoy and Torres, 1992.

[15] Calculated on the basis of five textbooks for each student at US$5 each.

Scholarships are provided for students from lower socio-economic backgrounds. The government recently increased the number of scholarships for primary and secondary students to 28,000 in 1998 (MIDEPLAN, 1998b). This is approximately 4 per cent of the total student population. Given that the number of families living in poverty is approximately 20 per cent, this number may need to be increased and the proportion targeted on secondary students increased.

## 11. Some restructuring opportunities

Notwithstanding the historic underinvestment in secondary education, there may be room for significant cost-reduction within the school system. Using primary data from 350 day secondary schools from the academic and technical streams (out of 354 in reality), *Table 9.7* was compiled. The table includes data regarding the relative per capita cost, the pass rate, the PTR, the percentage of qualified teachers, the ratio of administrative staff to teaching staff, and indications of the relative importance of each type of school. In addition, statistical analyses were carried out between the different types of indicators to try to establish the relationships between them.

Table 9.7 Analysis of school characteristics (1997)

| Type | Number of schools | Number of students | Average size | Cost per cap. Colones | Relative cost | Pass rate*** | PTR | % of qualified teachers | Admin. Teachers |
|---|---|---|---|---|---|---|---|---|---|
| Total | 350 | 191,480 | 606* | n.a. | n.a. | 0.51 | 15.4 | 0.74 | 0.16 |
| Public | 234 | 161,353 | 776* | 122,256 | 1.29 | 0.43 | 17.8 | 0.70 | 0.15 |
| Urban | 121 | 114,108 | 979* | 94,621 | 1.00 | 0.40 | 22.9 | 0.79 | 0.17 |
| Rural | 113 | 47,245 | 497* | 144,400 | 1.53 | 0.44 | 15.0 | 0.60 | 0.14 |
| Academic* | 117 | 112,147 | 959* | 101,215 | 1.07 | 0.40 | 21.4 | 0.76 | 0.15 |
| Urban | 82 | 92,743 | 1,131 | 94,539 | 1.00 | 0.40 | 23.0 | 0.83 | 0.16 |
| Rural | 35 | 19,404 | 554 | 121,272 | 1.28 | 0.41 | 17.9 | 0.61 | 0.13 |
| Lower secondary | 34 | 6,956 | 205 | 139,016 | 1.47 | 0.40 | 15.6 | 0.42 | 0.15 |
| Scientific** | 6 | 225 | 38 | 1,112,845 | 11.77 | 0.86 | 2.0 | 1.00 | 0.12 |
| Technical | 77 | 42,025 | 546 | 229,767 | 2.43 | 0.45 | 14.7 | 0.70 | 0.13 |
| Private | 97 | 18,607 | 192 | n.a. | n.a. | 0.66 | 9.3 | 0.83 | 0.21 |
| Semi-private | 19 | 11,520 | 606 | n.a. | n.a. | 0.65 | 18.5 | 0.78 | 0.17 |

*Does not include lower secondary schools.
**Four of these schools were created during 1995-1998, which may account for the very small number of students.
***These are preliminary pass rates, and do not include re-sits.
Author's calculations based on MEP, 1998a.

The schools were divided into the public, private and semi-private sectors. The latter two were included in order to be to able gauge the relative performance of the public sector. The public-sector schools were also divided into their various types. academic schools, which are the most common, were divided into those located in rural and urban areas. Technical schools were also included, as were a number of lower-secondary schools that only have the first three years of secondary. Finally, the small number of highly selective special science schools were integrated into the sample.

An analysis of pass rates shows that there is substantial difference between the public-sector schools and those in the private and semi-private sector. Forty-three per cent of students in the public system pass their courses, versus 66 per cent in the private and 65 per cent in the semi-private. Among the public-sector schools, the academic urban, rural, and lower-secondary schools have similar pass rates of around 40 per cent. The technical schools perform slightly better with a pass rate of around 45 per cent, and the scientific schools have the highest pass rates of all types of school of 86 per cent, as might be expected from their selective nature.

The pupil/teacher ratios in the schools vary significantly among the different schools. The urban academic schools have PTRs of 23:1, the rural schools of 17.9:1, and lower-secondary schools of 15.6:1. Technical schools also have quite low PTRs of 14.7:1 and scientific schools have ratios of only 2:1. Private schools and semi-private schools have PTRs of 9.3:1 and 18.5:1, respectively.

The percentage of qualified teachers also varies widely. Eighty-three per cent of the teachers in urban academic schools are qualified, compared with 61 per cent in rural academic schools and only 42 per cent in lower-secondary schools. Seventy per cent of teachers in technical schools are qualified, as are all teachers in a small number of special science schools. The values for the private and semi-private schools are 83 per cent and 78 per cent.

Administrators in academic urban and lower-secondary schools represent 15-16 per cent of teaching staff. In academic rural, technical, and special science schools the corresponding figure is 12-13 per cent of teachers. Private and semi-private schools have the highest proportion of administrators, as they represent 21 per cent and 17 per cent of teaching staff respectively.

Approximate costs were estimated for the different types of public schools using the existing pupil/teacher ratios (on the assumption that PTR is the main determinant of unit costs). This shows that the urban academic schools with the highest PTRs are the cheapest. These were used as a benchmark from which to measure the relative expense of the other types of school. Rural academic schools cost about 28 per cent more than their urban counterparts and lower-secondary schools almost 50 per cent more. Technical schools are quite expensive as they cost almost 2.5 times an academic urban school. Special science schools are very expensive, costing almost 12 times more than an academic urban school. However, there are only six of these schools.

Regressions were run between each of the different types of indicator for the public-sector schools to test their interrelationships (see *Table 9.8*). There is a minuscule, but statistically significant and negative relationship between school size and the pass rate. The adjusted R-square value of 0.02 means that only 2 per cent of the variance in the pass rate can be explained by school size. Thus, in effect, school size has no systematic effect on the pass rate.

Table 9.8 Regression results

| Dependent variable | Independent variable | Constant term | | Slope coefficient | | Adjusted R-squared |
|---|---|---|---|---|---|---|
| Pass rate | School size | 0.463 | *30.01* | –4.50E-05 | *–2.51* | *0.02* |
| PTR | School size | 11.91 | *26.21* | 0.009 | *16.39* | *0.53* |
| Pass rate | PTR | 0.58 | *21.42* | –0.008 | *–5.81* | *0.12* |
| Pass rate | Qualified Teachers | 0.43 | *9.04* | 0.145 | *2.44* | *0.02* |

The numbers in italics are T ratios, values greater than 2 are considered significant.

There is a very strong, positive, and statistically significant relationship between the PTR and school size (adjusted R-square, 0.53), meaning that as schools grow in size, so too does the PTR.

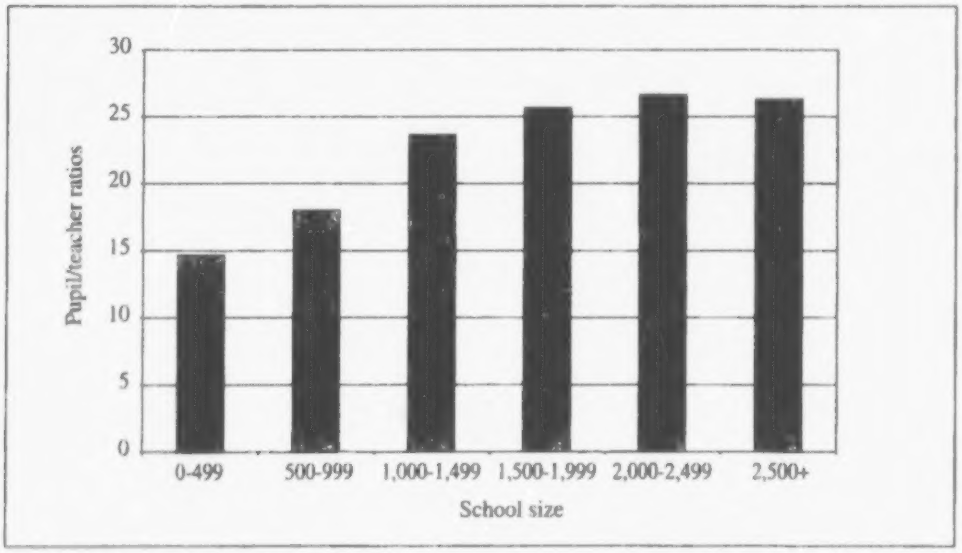
The pass rate and the PTR have a small negative but significant relationship. The adjusted R-square shows that 12 per cent of the variance in the pass rate can be explained by the PTR. The fact that it is negative is logical, as it shows that a lower PTR can help raise pass rates. However, the relationship, while statistically significant, is not very strong.

The pass rate and the percentage of qualified teachers have a small, positive, and significant relationship (adj. R-square, 0.02). It is surprising that the relationship is not stronger, as it might be thought that more qualified teachers would have a very important effect on performance. It may of course be that the relationship is confounded by many other factors that influence achievement as measured by pass rates.

When put together these results suggest a number of options. The fact that there is a very strong relationship between school size and the PTR means that bigger schools require fewer teachers pro rata and are thus cheaper to operate. While the PTR does seem to affect the pass rate, this relationship is not strong and the relationship between school size and the pass rate is of negligible importance. Thus, the data support the view that larger schools are more cost-effective and have similar results to smaller ones.

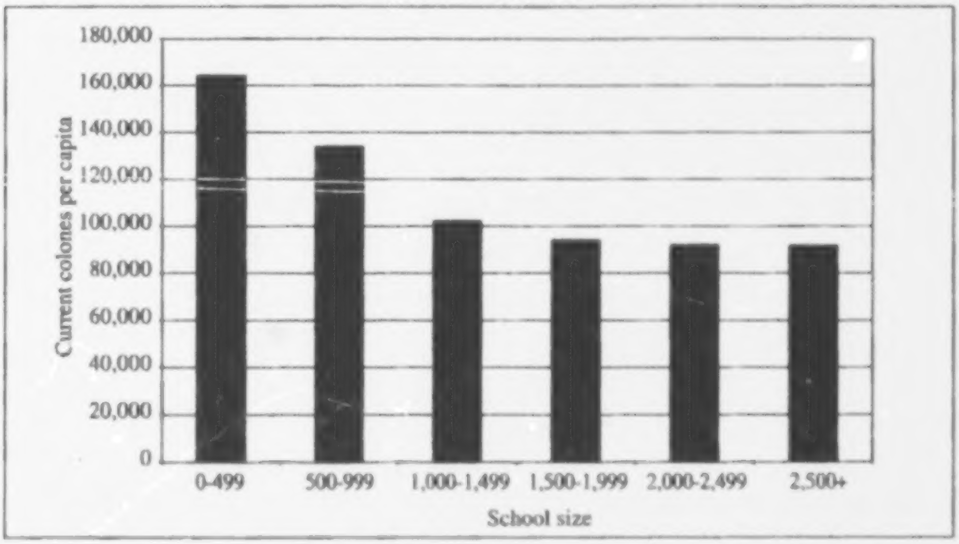
*Charts 9.8* and *9.9* show the pupil/teacher ratios and the per-capita cost of different sizes of schools. As can be seen, those with populations below 500 are the most expensive to operate. The schools become cheaper as they increase in size, although this is less visible for schools with more than 1,000 students.

Chart 9.8 School size and pupil/teacher ratios



Author's calculations based on *Table 9.7*.

Chart 9.9 Per-capita cost and school size



Author's calculations based on *Table 9.8*.

Increasing average school size would reduce unit costs. However, it would be difficult to advocate closure of schools that have already been built. Schools are usually built upon request by the communities, which then finance the purchase of the land. Rural schools are often small and thus likely to be more costly per student. Nevertheless, it may be that some small schools could be merged, that further expansion in capacity could be based on existing infrastructure rather than opening new small schools and that more and cheaper transport could be offered to students if this gave access to superior facilities concentrated on fewer sites.

Should half the student population in schools smaller than 500 students be relocated to schools with 500-1,000 students, this would represent a saving of around 1.2 per cent of the budget. Similarly, should half of the students in schools with 500-1,000 students be moved to bigger schools (1,000-1,500), this would represent savings of 2.2 per cent of the budget.

The existing distribution of teachers and the ensuing cost differentials between schools suggest several areas where detailed analysis would be worthwhile. The special science schools cost twelve times as much as an academic urban school. However, the student population involved in each is very small (less than 250), so the savings created by reducing these costs would be minimal. The government has recently opened several additional 'elite' schools. If this is the beginning of a trend, then the cost implications could become substantial. High costs per student might be justified in a few highly specialized institutions. However, it remains unclear whether it is essential for the special science schools to operate with such small numbers of students. This implies that the utilization of expensive facilities is unlikely to be efficient.

More significant savings could probably be obtained through reforms in the technical school system, which caters for around 25 per cent of students in the public sector. These schools cost 2.5 times as much as an urban academic school. The pay-offs for these additional costs are not very clear. Large numbers of those who complete secondary education in the technical stream continue to university alongside those graduating from cheaper academic secondary schools. This may imply that the additional costs of providing technical-school curricula are largely wasted. It is also argued that many employers prefer to hire graduates from the National Training Institute (INA), who have similar technical knowledge but no academic qualifications and are thus cheaper.[16]

The demand for technical secondary education may actually be lower than is thought. Only 17 per cent of students in urban schools are in the technical stream, compared with 48 per cent of those in rural schools. In many cantons[17] in rural areas there are only secondary technical schools. In some cases there are three or four technical schools in the same area, each catering to a particular specialization, the result of which is smaller school size and higher costs than would otherwise be the case. There may be possibilities for school consolidation, and for the development of schools that offer both academic and technical streams in the same institution. If half of the student population in the technical stream were taught at similar costs to the academic stream, this could result in savings of approximately 8 per cent.

Another source of some inefficiency lies with the lower-secondary schools. These schools have low pupil/teacher ratios and are on average 1.5 times as expensive as the urban academic schools. Were it possible to reorganize these schools such that they had similar costs to ordinary urban academic secondary schools, about 1 per cent of the education budget would be saved.

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16. Interview with Orlando Morales, Director of the National Training Institute, July 1998.
17. The smallest political and administrative division of the country.

## 12. Some simulations

Having looked at the various options for reducing costs and areas that could benefit from additional investment, several possible scenarios will be looked at to evaluate their impact on enrolment rates and their possible costs. The Costa-Rican education system was modelled using current data to create a baseline simulation. The basic parameters used to configure the baseline simulation were as shown in *Table 9.9*.

Table 9.9 Baseline parameters, Costa Rica simulation

| Parameter | Simulation 1 |
|---|---|
| Population growth | 2.0% |
| Primary GER | 107% |
| Secondary GER | 61% |
| Unit cost ratio of secondary to primary | 1:1.5 |
| Primary entry rate | 110% |
| Repetition | 7-13% depending on grade |
| Promotion | Between 83%-88% |
| Drop-out | Average 5% |
| Pupil/teacher ratio | 30.6:1 |
| Teacher attrition | 5% |
| Secondary entry rate | 86%[18] |
| Repetition | 5-17% depending on grade |
| Promotion | 60-90% depending on grade |
| Drop-out | 9-25% depending on grade |
| Pupil /teacher ratio | 19.4:1 |
| Teacher attrition | 5% |

Simulation 1 was run for Costa Rica to project forward expenditure for 15 years. In the baseline version, costs grow at the rate of population growth so that at the end of the 15-year period the education budget would have to have increased to about 1.3 times its current value to maintain gross enrolment rates of over 100 per cent at primary and 61 per cent at secondary. This unreformed system would remain very inefficient in the sense that repetition and drop-out rates would remain high, especially in the secondary grades. Since enrolment rates are not varied, the proportions of the total school-system costs taken by primary and secondary remain the same.

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[18] Calculated on the basis of the student population in 6th grade in 1994 and 1st year in 1995, taking repetition into account.

Simulation 2 shows the effects on costs and GERs of allowing the repetition rate to halve over the first five years and halve again from its new value over the next five years. Drop-out is also decreased to half its current value in primary and to 25 per cent of its value in secondary. As a result, GERs at secondary increase to over 86 per cent (*Chart 9.10*) and costs rise for the school system to 1.5 times their current values. The cost of the secondary-school system increases faster than the primary and secondary begins to occupy a greater share of the budget (*Chart 9.11*).

Chart 9.10 Simulation 2: Gross enrolment rates at primary and secondary

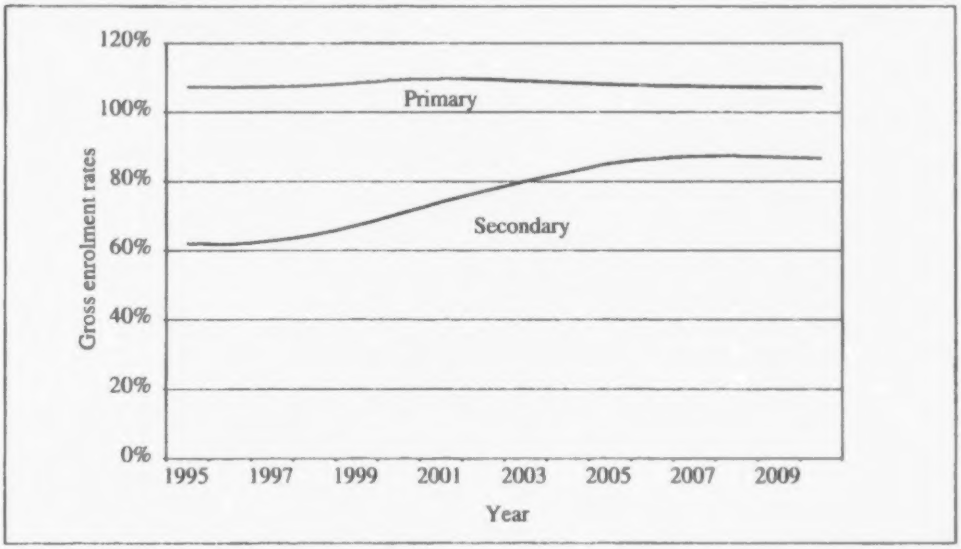
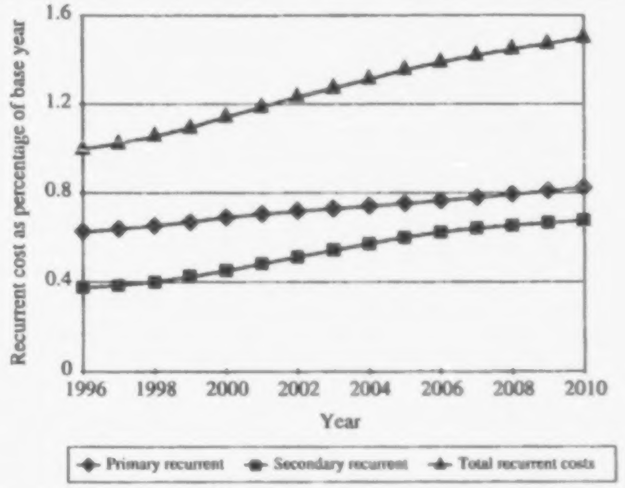
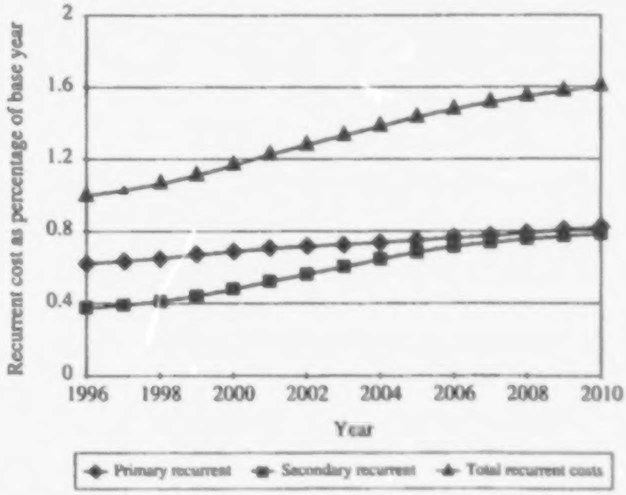


Chart 9.11 Simulation 2: Recurrent costs for primary and secondary as a proportion of total base-year costs, 1996-2010



Simulation 3 explores the cost of moving to a GER at secondary of 100 per cent over 10 years. This is achieved by increasing the transition rate into secondary, so that all those who complete primary enter secondary, and by retaining the reductions in repetition and drop-out included in simulation 2. The result is that total school-system costs would have to rise by 1.6 times over 15 years (*Chart 9.12*). In this case the secondary system begins to approach the same total cost as the primary system.

Chart 9.12 Simulation 3: Recurrent costs for primary and secondary as a proportion of total base-year costs, 1996-2010



In Simulation 3, unit costs at secondary remain at 1.5 times those at primary. When 100 per cent GERs are reached at both primary and secondary, the secondary system as a whole remains a little below the cost of the primary system, not more, as might be expected. This is mainly because total enrolments in secondary remain less than those in primary (the age cohort is pyramid-shaped, and most students are enrolled for five and not six years).

Simulation 4 shows the effects of allowing the salaries of secondary teachers to increase in real terms and as a ratio of those of primary teachers. If this were undertaken to restore differentials between primary- and secondary-school teachers to the extent that unit costs at secondary were about twice those at primary[19], and if the average pupil/teacher ratio at secondary was allowed to increase from about 19.4:1 to 23:1 (through increases in average school size, etc.), the outcome would be an overall cost increase of 1.85 after 15 years (*Chart 9.13*). In this simulated system, more has to be spent on the secondary than primary school-system. Repetition and drop-out are relatively low and GERs at primary and secondary level are both over 100 per cent.

Simulation 4 is cost sustainable if economic growth averages over 3 per cent over the next 15 years. Three per cent growth would produce a 50 per cent increase in the budget over the projection period. It is possible that the difference between this growth (1.5:1) and the 1.85:1 required, could be found from a mixture of modest increases in the proportion of GDP allocated to education, gains arising from more efficient utilization of resources, redistribution of some subsidies from other parts of the education system towards secondary, and from increases in community contributions and private donations.

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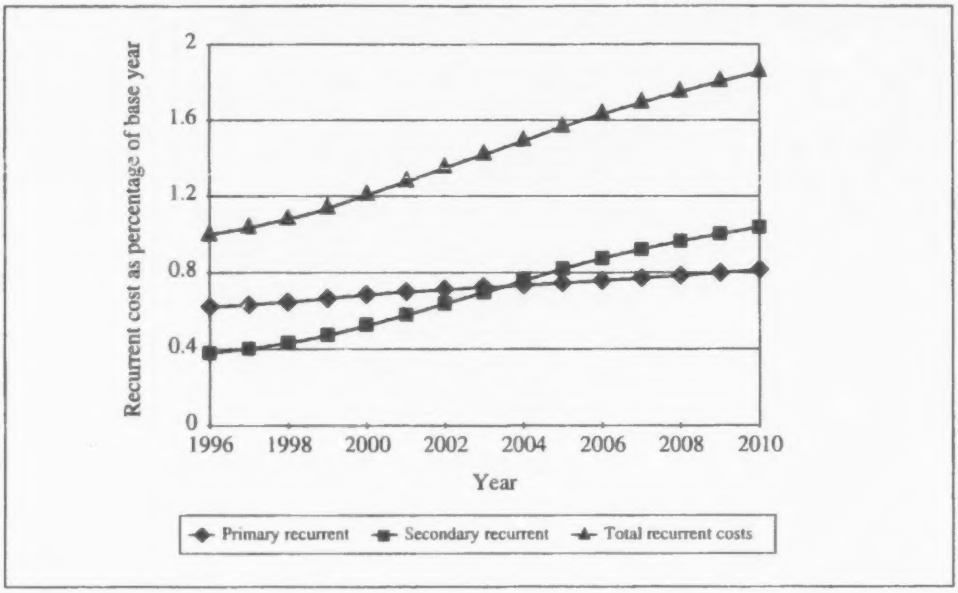
[19] This implies a smaller increase in average salaries, since PTRs at primary are higher than secondary.

Chart 9.13 Simulation 4: Recurrent costs for primary and secondary as a proportion of total base-year costs, 1996-2010



The simulations therefore lead to the conclusion that all the developments modelled could be achieved given appropriate choices of policy and realistic shifts in the allocation of the education budget.

## 13. Concluding remarks

This chapter has explored aspects of secondary enrolment and enrolment growth in Costa Rica. Participation rates in the fifth year of secondary schooling remain low, at no more than 30 per cent, and the proportion of those in the labour force who have completed secondary schooling is small. The country's development strategy seeks to encourage inward foreign investment, especially in sectors that have high levels of value-added and in areas where production is more rather than less knowledge based. If the proportion of those with successfully completed secondary education does not grow, it seems likely that a bottleneck will develop that could mean an insufficient supply of secondary-educated school-leavers into the workforce and/or towards higher levels of education and training, which could damage competitiveness.

Participation rates at secondary have only recently begun to grow again after a period of decline and stagnation starting in the early 1980s.

The secondary-school system suffers from high repetition rates and high drop-out and is thought to have declined in quality. In addition, higher education is especially protected by a constitutional clause which guarantees the proceeds of an earmarked tax. Partly as a result, a larger proportion of the education budget has been spent on higher education than on the entire secondary-school system.

The analysis in this chapter suggests that the question of secondary school enrolment growth needs re-examining. If Costa Rica is to develop an educational profile more like those of the countries it competes with, it will need to find ways of supporting growth in participation rates at secondary. It appears that virtually all those who complete primary have the opportunity to enrol in the first year of secondary. The problem of low enrolment rates at secondary appears to be one of retention rather than an absolute shortage of places. This, in turn, may be linked to a range of factors - school quality, teachers' remuneration and motivation, proportions of unqualified teachers, repetition policy and curriculum standards, rising direct costs to pupils and parents – which are more or less under the control of the Ministry of Education.

The projections of expenditure associated with various types of structural reforms suggest that Costa Rica can afford higher levels of secondary participation. If economic growth averages 3 per cent over the next 15 years, the costs of near universal secondary enrolment with improved levels of quality would seem largely supportable from domestic resources. The data suggest that significant economies could arise from various structural changes that would ease the financial burden of enhanced participation. These include discouraging the growth of enrolments in small enrolment secondary schools, phasing out relatively expensive three-year secondary schools, reconsidering the rationale for secondary technical schools and the need for their relatively high costs per pupil, and setting minima on permissible pupil/teacher ratios.

Alongside these measures there are others that are desirable and which increase costs. These costs might be justified by their impact on improved quality and performance. The 25 per cent of teachers who are unqualified represent salary savings of only about 4 per cent. Ensuring all teachers are trained could have a positive effect on pupils' performance and promotion rates without generating unsustainable costs, although some of the data reviewed suggest that the links between the number of qualified teachers and academic performance are not clear-cut. Teacher salaries have declined in real terms and differentials between secondary and primary teachers have diminished. Recruitment of new secondary teachers is problematic. Some real increase in secondary teachers' salaries may be necessary to improve motivation and commitment. Provision of learning materials is widely regarded as inadequate and likely to impair learning. Many more textbooks and teachers' guides could be provided at costs which are a small proportion of the recurrent budget.

Costa Rica has the opportunity to reverse the decline in secondary enrolment of the 1980s and invest in measures to improve retention and participation through to the end of the secondary cycle. To do so will require some political will to make this goal a priority. It will also need successful interventions to improve internal efficiency and enhance school quality so that demand does not falter. Such a strategy would seem needed if growth dependent on more knowledge-based industries is to be realized.

## Chapter X

# Financing increased access and participation at secondary level: main policy options

*Françoise Caillods and Keith Lewin*

This chapter seeks to develop an analysis of the main options available to governments seeking to finance increased access to and participation in secondary schooling. The first section summarizes findings from the case-study data. The next sections move to an analysis of the options under five different categories. These are: increasing the allocation of public budgets to secondary schooling, shifting resources between educational levels, reducing unit costs and increasing internal efficiency, identifying new sources of support from community and private sources, and mobilizing external assistance for secondary education.

## Lessons from case-study data

The first group of case studies explored the development of secondary schooling in Zimbabwe and Malawi and developed a synthetic overview of five francophone countries – Burkina Faso, Mali, Senegal, Madagascar and Côte d'Ivoire. The subsequent summaries relate to the two Asian cases of Sri Lanka and China, and to Costa Rica.

**Zimbabwe** achieved independence in 1980 and immediately committed itself to universalizing primary schooling and providing more access to secondary schools. Secondary participation grew from a gross enrolment rate of below 15 per cent to over 40 per cent by the early 1990s. Since then this level has been maintained but not improved. Transition rates from primary to secondary initially fell, but from the late 1980s onwards remained fairly stable at around 65 per cent. During the period of rapid expansion at secondary, pupil/teacher ratios increased to over 40:1, but then fell back to between 25:1 and 30:1. Untrained teachers were recruited in large numbers and trained whilst they were working to achieve this result.

Several factors appear to have contributed to Zimbabwe's success in expanding secondary provision. First, there has been a high level of commitment of public resources. As much as 8 per cent of GNP and 17 per cent of public expenditure have been allocated to the education budget as a whole. The allocation of resources to tertiary institutions has been limited to a small proportion of the total. Allocations to secondary level reached between 2 per cent and 2.5 per cent of GNP, well above the average for sub-Saharan Africa. Second, the costs per student at secondary appear to average about twice those at primary, a low ratio by sub-Saharan African standards. Part of the reason is the extent to which the public finance is supported by fees and other contributions. The system of school administration shares costs with local authorities and community-based organizations, though teachers' salaries are paid by the government. Fees appear to range between virtually full-cost recovery to about one-third of the cost per pupil.

Third, automatic promotion at primary has reduced repetition rates to low levels, thereby increasing participation at the same level of cost. Fourth, double shifting has also made a contribution to increased capacity, thus saving on capital costs. This, and the savings from employing substantial numbers of untrained teachers, who are paid below the rates for qualified teachers, eased the short-term burden created by expansion.

The analysis also draws attention to some of the problems that have been associated with expansion. Attrition throughout secondary schooling remains significant, especially amongst the poor and for girls. The most common explanation relates to the relatively high costs that fall on parents. Fee levels are correlated with the quality of provision. Efforts made to diminish differences between school types do not seem to have been effective. Differences in public subsidy remain skewed towards the more advantaged schools.

Simulations show that GER2 could be increased at sustainable levels of cost if repetition fell and drop-out were reduced, especially if population growth slowed down as is predicted. The major policy question appears to be whether labour-market signals, which suggest high levels of unemployment amongst secondary leavers, indicate that further expansion of secondary schooling should not be prioritized. An alternative would be to invest more in democratizing access to existing schools (e.g. through scholarships and fee waivers to poor households), improving quality to reduce repetition and drop-out, and reducing the differences that persist between school types.

**Malawi** has faced a much more difficult state of affairs. Near universal free primary education has been achieved without significant expansion of the public secondary-school system. Secondary GERs remain very small in the normal public-school system, at around 7 per cent. Fees in government schools are small and represent 5-15 per cent of actual costs, with all other costs being borne publicly. Enrolments in the Malawi College of Distance Education (now Community Day Schools) have grown rapidly since 1994 to over 100,000 students, equivalent to a GER2 of about 13 per cent. This system is of low quality with pass rates of less than 10 per cent. The expansion was made possible by the low public costs of the MCDE system and the fact that two thirds or more of total costs are paid by parents through fees. Fully private schools have also developed rapidly, and now account for around 15 per cent of total enrolment.

The difficulties in improving access to and quality in secondary schooling arise from several sources. First, the overall budgetary position is constrained by a lack of economic growth and the fact that about 6 per cent of GNP is already allocated to education. Within this total more than 65 per cent is needed to support free primary education. Of that which is left, more is allocated to support tertiary institutions than to the entire public secondary-school system. Second, costs per student in normal secondary schools are high and average about seven times those in primary schools. This in itself constrains growth since, *ceteris paribus*, the costs of the secondary system will grow rapidly in relation to the overall budget if participation increases.

Third, government secondary schools are typically small (400-500), suffer dis-economies of scale, and are usually operated at relatively low pupil/teacher ratios of 15-20:1. Fourth, boarding is widespread and is the preferred method of schooling of many parents. It is heavily subsidized in government schools. Not all the boarding appears justified by location, though some is as a result of the low enrolment rate and large catchment areas of schools. Fifth, a further constraint on secondary expansion is teacher supply. If all secondary teachers are to be graduates, as is now intended, it is likely to prove difficult to attract enough graduates into teaching because of the small output of secondary schools and the higher education system.

The magnitude of the financial challenge is considerable. Simulations suggest that merely to sustain the free primary education enrolment gains will generate costs that are likely to exceed imaginable growth in the education budget, even if repetition and drop-out fall from high levels. Any expansion of secondary represents an additional cost.

Increasing participation to the levels found in Zimbabwe (GER 40 per cent) with current cost structures in government schools would require up to four times current spending on education in Malawi. The only possible source of much of this would be external assistance.

The Malawi Government is committed to expanding access to secondary schools and there would seem to be compelling reasons why the participation rate should be increased from its very low base. In summary, it is possible to imagine modest and sustainable growth in secondary schools of reasonable quality, financed by a mixture of increased private contributions, efficiency gains, and strategic donor assistance. However, realistically even this will result in a gradual rather than a rapid increase in participation, unless costs per student are substantially reduced and/or private contributions raised.

**The francophone African countries** analyzed are ones where secondary GERs remain small, the highest being 23 per cent in Côte d'Ivoire. The difficulties in improving access to and quality of secondary schooling arise from several sources. First, universal primary education is far from being attained in all of these countries and competition for scarce resources is fierce. Second, the overall budgetary position is constrained by a lack of economic growth, a limited fiscal base and heavy commitments to debt servicing and reimbursement. Côte d'Ivoire already allocates 5 to 6 per cent of its GNP to education and it seems difficult to go much beyond this level. Third, costs per student in secondary schools are high and average several times those in primary schools. Fourth, the problem of unemployment of secondary-school graduates is already serious. Selective rather than general expansion of participation at secondary is the most attractive option until economic growth returns.

Several of these countries have committed themselves explicitly to expanding access to a nine-year basic education which entails primary and lower-secondary education (e.g. Mali, Senegal and Côte d'Ivoire). The magnitude of the financial challenge is daunting. Measures that are being considered include reducing the length of secondary education (Mali), encouraging the development of the private sector (Côte d'Ivoire, Madagascar, Mali) and introducing cost sharing. The full range of policy options will be discussed below. What proportion of public resources should be devoted to secondary education is perhaps the key issue until a better coverage at the primary level is achieved.

**Sri Lanka** has achieved high levels of secondary enrolment at low cost and is a low-income country. By the mid-1980s gross enrolment rates at secondary exceeded 65 per cent. Primary GERs had been over

100 per cent for a decade. Sri Lanka has managed to achieve this whilst consistently investing around 3.5 per cent of GNP in education, and not much more than 10 per cent of government expenditure.

The main factors that have contributed to Sri Lanka's success are: first, that the unit costs of schooling are relatively low and typically average about 10 per cent of GDP per capita. This is not because pupil/teacher ratios are unusually high, since they average about 26:1, but arises primarily from the fact that salary levels relative to GDP are lower than in many other countries. Second, Sri Lanka has an unusual pattern of open access to schooling without selection through to Grade 10. Many secondary schools include primary sections and benefit from the economies of scale that this can yield on fixed costs. They may also share staff across grades. Teachers are not as strongly differentiated into primary and secondary as in many other countries. As a result, the costs of secondary-school places are on average no more than twice those of primary.

Third, higher education has only recently begun to absorb substantial proportions of the education budget. Whilst secondary enrolments were growing, higher education typically accounted for about 15 per cent of the budget. Fourth, enrolment gains have been achieved in a context of demographic transition to low growth. The growth in the school-age cohort is about 1.2 per cent and is projected to fall further. This has reduced the demand for new teachers and buildings considerably. Fees and other community contributions have not been significant in financing expanded access in Sri Lanka. Fees generate no more than about 3 per cent of recurrent costs.

Problems remain which include the fact that a substantial number of schools in rural areas have under-enrolled lower-secondary grades. Primary schools have been allowed to expand to acquire lower-secondary grades with small numbers of pupils. If more use was made of multi-grade teaching and minimum class sizes were introduced, considerable benefits in terms of savings would be available. Inequalities between schools persist, especially between those secondary schools that have university entrance grades and those that do not. Most of the differences in public expenditure per child can be traced to the deployment of teachers.

In summary, Sri Lanka has achieved high secondary-enrolment rates at low costs and is able to sustain these. The main reasons relate to low teacher costs, patterns of school organization which link primary and secondary schools, and low population growth.

**China** has had a very diverse experience in expanding access to secondary schools. Conditions vary widely across this vast country. Liberalization and the development of a socialist market economy have resulted in a great range of financing mechanisms. These have complemented certain long-standing structural features of school financing that are uncommon outside China. Schools are integral parts of local economic and political organization and teachers are members of work units (danwei), which have a range of economic and social responsibilities. Local school financing is dependent on the activities of these groups and systems of local taxation.

Common arrangements include earmarked local taxation for education levied on business turnover and payrolls; allocation of a share of the profits of school-run businesses (these are enterprises in common ownership); and different forms of collective work-unit support for schools based in the community (in cash from fund-raising and in kind from labour, etc.). Other significant elements that sustain relatively high secondary enrolment rates include low population growth; effective compulsory attendance legislation backed by sanctions on employers; and performance-related structured salary schemes, which provide basic salaries enhanced by productivity-related payments for teachers.

Case-study data from a rapidly developing urban coastal area note that schools have a high level of dependence on work-unit-related income from activities unrelated to schooling. Entrepreneurial use of school assets (e.g. renting space and buildings) is widely practised. Some urban schools generate substantial income from fee-paying students from outlying areas. One consequence has been the development of large differentials between teachers' income, and between unit costs, in urban and rural schools. Large differences have emerged between teachers' (publicly funded) salaries and teachers' total income as a result of non-budget contributions from fund raising.

These developments have created a number of tensions. It is not clear how increased participation can be financed in poorer areas, where opportunities to generate off-budget income are extremely limited. There are few effective mechanisms to limit the growth in inequality in school financing. As financial autonomy has developed alongside greater degrees of decentralized control, procedures to assure quality and compliance with national legislation on standards and performance have been slow to develop. There appears to be a growing problem of ensuring an adequate supply of competent teachers in areas where basic salaries cannot be substantially enhanced.

China can support high levels of secondary enrolment in urban areas at low costs through a combination of relatively low budgeted salary costs, high levels of additional school income from revenue raising, work-unit subsidies, fee-paying students from outlying areas, and because low population growth has resulted in a shrinking age cohort.

**Costa Rica** has had a consistent development strategy favouring investments in the social sector. It achieved relatively high levels of secondary participation more than two decades ago. Recession in the 1980s was accompanied by a decline in enrolment rates at secondary from about 62 per cent to 49 per cent. Though participation remains substantial, there are concerns that the relatively small proportion of secondary graduates in the labour force may hinder competitive advantage in attracting foreign investment.

Costa Rica invests heavily in education and is unlikely to increase the amounts allocated as a proportion of GDP, which are around 6 per cent. However, pass rates, as well as repetition and drop-out rates in secondary schools, are indicative of problems with quality and fragile effective demand. The proportion of those completing secondary education is not much higher than for those with tertiary qualifications. Unusually, the tertiary budget is constitutionally protected, as is the proportion of GNP spent on education as a whole. This currently results in more being spent on tertiary-level subsidies than on the secondary-school system. The ratio of costs between primary and secondary is close to 1:1.

If secondary retention and success rates are to improve, and if participation rates are to reach levels in countries with which Costa Rica competes for inward foreign investment, reform is needed to increase efficiency, encourage retention to the end of the secondary cycle, and allow growth in participation within sustainable financial allocations. Several measures could contribute to this.

The case study suggests the need for consideration of an increase in secondary teachers' salaries to make the profession more attractive to high-quality graduates. If this were coupled with rationalization of the curriculum to bring the cost of technical schools closer to those of academic schools, some of the costs could be offset. In addition, it might be possible to increase the average school size to generate economies of scale and reduce the number of expensive three-year secondary schools. Earmarked funding for secondary-school development, similar to that constitutionally prescribed for higher education, could also be helpful. Other desirable developments include measures to improve quality to make secondary schooling more attractive (e.g. curriculum reform, scholarships for students from low-income households, subsidies to ensure the availability of learning materials, the providing of opportunities for all untrained teachers to be trained).

## Options available to finance increased participation in secondary schooling

The options available to increase access to and participation in secondary schooling in developing countries fall into five groups. It may be possible to adopt strategies based on one or more of these options. First, the overall allocation of public investment to education could be increased and used to enhance investment in secondary schooling. Second, resources allocated to other levels of education might be redirected towards investment at secondary level. Third, existing public resources could be utilized more efficiently and unit costs could be reduced so as to provide more access. Fourth, new national sources of finance could be identified through greater private and community contributions. Fifth, external assistance could be re-profiled to yield more benefits for the development of secondary education. The remainder of *Chapter 10* will present these various options and discuss their advantages and disadvantages.

### Option 1: Increase overall allocations to the education sector

The room for manoeuvre to increase overall expenditure on education, and that on secondary in particular, is constrained in different ways in different countries and therefore no general prescription is possible. The analysis in *Chapter 2* showed that countries with low GER2s (below 40 per cent) were spending on average about 4 per cent of GNP on education and allocated about 18 per cent of government expenditure. These figures appear to have increased modestly from 1985 to 1995. It was noted that the macro-economic situation in many of these countries with low enrolment rates has been disappointing and GNP per capita has often not grown. Indeed, many African countries with low GER2s have experienced negative growth. In these cases, although the proportion of the public budget allocated to education may have been increasing, the real value it represents may have declined.

Countries with higher levels of GER2 typically allocate 5-6 per cent of GNP to education as a whole. It would seem reasonable to argue that countries that currently allocate less than 5 per cent of GNP to education should raise their commitment to the levels found in the higher GER2 countries. This could release more resources for secondary schooling. Two elements should however be kept in mind. First, the state financial support for education is constrained by the amounts that the state can levy through taxes on economic activity and by the share of public resources that can be devoted to education. There are many competing demands. In most of the low GER2 countries, the size of the modern sector from which government can draw taxes is very limited[1] Educational investment has to be balanced against demands from other social sectors, such as health, agriculture and manufacturing, and from public works for infrastructure. Debt servicing also drains substantial proportions of revenue in the highly indebted poor countries. Second, in many of the low GER2 countries primary enrolment rates are also low and improvements in access and retention at the first level are being accorded priority. Thus, even if the overall proportion of GNP allocated to education could be increased, much of the benefit might be absorbed by the financial demands of expanded primary schooling in these countries[2]. Where there are high levels of primary enrolment and relatively low GER2s, it is more likely that an increased allocation of up to 5-6 per cent of GNP could be directed towards expanding access to secondary schooling. It would seem clear that, aside from a few exceptional cases, if secondary enrolment is to expand, it is not likely to be financed from large increases in public education budgets as a whole.

## Option 2: Shift resources from other levels within the education sector

A second possibility is that additional resources for secondary schooling can be mobilized through a redistribution of current patterns of allocation between levels. The data in *Chapter 2* show that low GER2 countries do not on average allocate disproportionate amounts to higher education when compared to countries with higher GER2s. However, this overall observation conceals the fact that in some countries, e.g. Malawi and Costa Rica, more public funds are allocated to tertiary level than to the entire secondary-school system. In these cases there clearly is an argument for a shift in the balance between levels in favour of secondary schooling.

It is the case that unit-cost differentials between levels (primary, secondary, and tertiary) are much greater in low GER2 countries. Secondary unit costs average 3.5 times those at primary in low GER2 countries (and much more in some cases), but less than double primary in other groups of countries with higher GER2s. Higher-education unit costs follow the same pattern with a much stronger skew towards relatively high values in low GER2 countries (more than 30 times primary costs). This suggests that the relative level of unit costs at secondary is a constraint on enrolment growth in many low GER2 countries.

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[1] Most of the taxes are indirect taxes and taxes on imports and exports.

[2] Debt forgiveness has changed the short-term circumstances of those countries that have benefited from recent policy changes by lending agencies and governments.

The next section discusses the problem created by relatively large differences in unit costs between secondary and primary and the high level of secondary costs in relation to GNP. If overall public budget allocations to education are unlikely to grow substantially, if the balance of investment between education levels is not unduly skewed, and if the unit costs of secondary are relatively high, then reforms have to be considered that will reduce the relative unit costs of secondary in low GER2 countries and permit greater participation and access.

## Option 3: Reduce unit costs at secondary level and/or produce more graduates with existing resources

A third option is to find ways of reducing the unit costs of secondary schooling so as to enrol more students and produce more graduates with the same amount of resources. Option 3.1 discusses the various measures that would allow reductions in unit costs. These include: structural reforms (e.g.: reducing the length of secondary schooling); curriculum re-organization (e.g. restricting the number of unduly expensive options); changes that would improve teacher utilization (e.g. increasing pupil/teacher ratios); and reductions in average salary and non-salary costs (e.g. increasing pupil/teacher ratios and changing the profile of the teaching cadre). Option 3.2 reviews measures aimed at improving efficiency, i.e. increasing the number of students enrolled and graduates produced at the same level of cost (which may also incidentally reduce unit costs). Option 3.3 explores ways of reducing capital costs and Option 3.4 considers alternative delivery systems.

### *Option 3.1: Reducing unit costs*

- Structural issues – modifying the length of secondary schooling

First, it is necessary to consider some structural issues, the most prominent of which is the length of secondary schooling. Most developing countries inherited the structure of their education systems from former colonial powers. Over time, some have diverged from their original form and have varied the number of years in different educational cycles and the range of types of schools. The reasons for change are numerous and range from equity considerations (e.g. increasing the number of years of basic education available to all), to cost concerns and political factors (e.g. shorter cycles have lower costs; some countries have changed to reflect patterns common to neighbouring countries). It should be noted however that no research is available that establishes the effectiveness of one type of structure over another as far as pupils' achievements are concerned and that although this is sometimes asserted, it has yet to be demonstrated.

Currently there is a wide range of variation in the structure of secondary provision. This is illustrated in *Table 10.1*. Pattern 1 corresponds to the traditional structure of the French education system, with two relatively long secondary cycles after a short primary course. This pattern has influenced many francophone countries in Africa (Pattern 6). Pattern 2, with three short cycles at secondary level, corresponds to the education system that existed in many former British colonies in Asia and Africa. Pattern 9 is increasingly found in countries that have integrated primary and lower-secondary education into one basic education cycle. The other patterns listed illustrate most of the possible ways of dividing secondary education into one, two or three cycles, with or without selection from one to the other and with different lengths of lower- and upper-secondary cycles.

Table 10.1. Structure of secondary provision

| Pattern | Years Primary | Years Lower Secondary | Years Upper Secondary | Years Total | Description |
|---|---|---|---|---|---|
| 1 | 5 | 4 | 3 | 12 | Long lower secondary; upper-secondary selective |
| 2 | 5 | 3 | 2-2 | 12 | Average lower secondary, 2-stage selective upper secondary |
| 3 | 6 | 3 | 3 | 12 | Equal-length secondary cycles; upper-secondary selective |
| 4 | 6 | 2 | 4 | 12 | Short lower secondary; long upper secondary; upper-secondary selective |
| 5 | 6 | 4 | 2 | 12 | Long lower secondary; short upper secondary; upper-secondary selective |
| 6 | 6 | 4 | 3 | 13 | Long lower secondary; lower- and upper-secondary selective |
| 7 | 6 | 5 | 2 | 13 | Long lower secondary; short very selective upper-secondary |
| 8 | 8 | 2 | 2 | 12 | Long first cycle; short equal-length lower and upper secondary |
| 9 | 9 | | 3 | 12 | Long first cycle; short equal-length lower and upper secondary |
| 10 | 10 | | 2 | 12 | Long first cycle; selective upper secondary |
| 11 | 7 | 5 | | 12 | Long first cycle; non-selective lower and upper secondary |
| 12 | 6 | 6 | | 12 | Non-selective lower and upper secondary |
| 13 | 8 | 4 | | 12 | Long first cycle; non-selective lower and upper secondary |
| 14 | 10 | 2 | | 12 | Very long first cycle; non-selective lower and upper secondary |

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Each pattern has to be seen in relation to the length of primary education and the total number of years of schooling available. Pre-university education lasts 12 or 13 years in almost all systems. A trend is for it to become 12 years, excluding early childcare and pre-school educational arrangements.

The longer the primary education cycle and the shorter secondary education, the cheaper it is to finance the same overall length of school education. This follows from the fact that the costs of primary education are almost everywhere lower than those of secondary education[3]. Primary teachers are paid less than secondary teachers[4]; they tend to teach most or all subjects and are therefore less likely to be under-utilized than specialist secondary teachers. It is also true that non-salary costs are lower, since the equipment and the facilities required in primary are relatively simple. Other advantages advanced for longer primary cycles are that these may encourage enrolment and retention amongst children from rural areas and girls. The distance from home to a primary or upper-primary school is likely to be less than that for a secondary school and drop-out is often high at the point where pupils transfer from one school to another. When these factors are taken into consideration, systems which offer 8 years of primary education, followed by 4 years of secondary education, are likely to be easier to finance than systems of the 5-4-3 or 6-3-3 type, assuming similar levels of participation.

The drawbacks of long primary cycles and shorter secondary are that they may be seen as offering a lower-quality education. Non-specialist teachers may not be able to teach all the subjects effectively in the higher grades of primary, e.g. mathematics, a foreign language, science, technology, or they may not teach them at all. In many countries that have long primary cycles, specialist teachers do teach upper-primary classes. However, they tend to be less qualified than specialist teachers at lower-secondary level. Another possible disadvantage is that although in principle pupils can be enrolled in the same local school through a long primary cycle, this may not always be feasible in low population-density areas. Systems are not uncommon where children may have to go through a variety of types of primary school to finish the first cycle, e.g. satellite school, lower-primary school, upper-primary school. In these cases, long primary cycles lose the benefits associated with continuous attendance at the same school. Systems which privilege level of achievement over access may favour earlier transition to secondary on the grounds that specialist teaching can be made available sooner, albeit to fewer pupils.

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[3] The only exceptions for the public sector are where the public/private mix of funding is very different at secondary level, such that a great part of the total secondary-school costs are borne privately. This does not apply in most low GER2.

[4] Secondary-school teachers' salaries are invariably greater than those of primary-school teachers. Primary-school teachers tend to have greater teaching loads than secondary-school teachers and often work at higher pupil/teacher ratios.

Most countries continue to divide secondary schooling into two cycles: junior and senior or lower and upper. Increasingly, the first secondary cycle is based on a core curriculum which leads to selection and more diversified upper-secondary schooling. Lower-secondary schooling is likely to be cheaper to provide than upper secondary for reasons similar to those that result in overall cost differences between primary and secondary. The trend at lower secondary is to have few curriculum options and little specialization, allowing high rates of teacher utilization. The equipment required is simpler than that at higher levels and specialized rooms are infrequently needed. In science, one of the most expensive subjects, the provision of kits can help in the support of teachers' demonstrations and multi-purpose rooms can be built instead of expensive specialized laboratories. The qualifications and salaries of lower-secondary teachers are usually lower than those found in upper secondary. In addition, boarding facilities (a major cost where they exist) are less likely to be necessary at lower-secondary level – if enrolment rates are higher at this level, the area from which the student population is drawn should be smaller. It may on the other hand be more necessary to maintain boarding facilities at upper-secondary levels to ensure equitable access.

For these kinds of reasons, and because class sizes, pupil/teacher ratios and teaching loads are all typically higher at lower rather than upper secondary, longer lower-secondary cycles might be thought to be economically attractive. It may be possible to provide lower-secondary places for half or less than the cost of upper secondary (excluding the issue of boarding). Naturally, where lower- and upper-secondary courses are offered in the same school and where pupils from both levels may share the same facilities and teachers, differences in costs between levels ought to be less.

As a result of this difference in cost, for the same overall duration of secondary education, systems where lower secondary is longer and where upper secondary – the specialization phase – is short, may appear cheaper to organize. If, however, a severe selection occurs at the end of the first cycle, a short lower-secondary cycle may appear, to start with, to be a more feasible solution as far as resources are concerned[5]. For this and other considerations some of the anglophone countries of Africa have postponed high levels of specialization to the post-secondary or pre-university level.

It should be remembered that the length of primary and secondary schooling in particular countries is embedded in the fabric of their educational history and infrastructure. Curricula, examination systems, points of selection and transition to specialized courses and institutions, systems of teacher qualification and deployment, and buildings are all linked to current patterns. Also relevant to the length of the different cycles will be the legal age at which employment is allowed. To change the length of an educational cycle may therefore have ramifications that are far-reaching and involve substantial transitional costs. Curricula and examinations may have to be revised, teachers retrained[6], and buildings reconfigured or replaced. This is not an argument for maintaining the status quo regardless of its characteristics. It is an argument for considered judgements about whether the benefits of change compare well with the costs.

Decisions on the length of the different cycles of schooling are not usually made primarily on economic criteria. Nor should they be. However, it is clear that there are balances to be struck which have consequences for the utilization of the resources available and ultimately for the extent to which access to and participation in secondary level can be supported. There are circumstances where it is advisable and feasible to reschedule the break between primary and lower secondary, or change the balance of time between lower and upper secondary. If these offer the opportunity of increased internal efficiency and greater participation at sustainable levels of cost that do not undermine quality, they should be considered.

- Curriculum issues

In many developing countries secondary-school curricula have been derived from learning needs originally identified for the minority that would continue to study through to higher education. Few systems have developed curricula that favour the needs of those who leave secondary school over those who continue. This is understandable, given the historic origins of most systems and the selective character of secondary schooling which restricts access to a small minority of the population. And, indeed, those who succeeded in completing secondary often did continue to higher levels and became members of administrative, professional and managerial elites. As access and participation expand, however, the characteristics of the secondary-school population change. Thus, while systems with small secondary enrolments are generally populated by relatively homogeneous members of a selected group, often endowed with substantial cultural capital arising from relatively privileged home backgrounds, in expanded school systems, secondary students are likely to be more heterogeneous socially, ethnically, culturally and economically. Their occupational futures are also likely to cover a much wider range. Curricula content and teaching methods have to recognize the characteristics of this new population of students in ways that ensure motivation and relevance and yet control costs to sustainable levels.

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[5] Some countries have indeed changed the duration of their lower cycle several times to adjust for their human and financial resources, e.g. Bostwana.

[6] Bearing in mind that it is almost certainly easier to retrain primary teachers to teach at lower-secondary level (and lower-secondary teachers to teach at upper-secondary level) than to contemplate any changes in structure that would require shifting lower-secondary teachers to primary level.

Decisions therefore have to be taken about curricular organization and specialization that recognize the diversity of student needs, wants and capabilities. The options available include: the provision of a core curriculum, where all pupils study the same subjects; streaming systems, which track different groups of students along different curricula pathways, and modular or option systems, which allow many different combinations of subject matter and learning activities to be integrated into the curriculum experience of different students.

As noted above, the first option, offering a core curriculum, is increasingly becoming the norm at lower-secondary level. Lower secondary is seen as a consolidation of basic skills and a deepening of the foundations for future learning. Where a consensus on curricula areas to be prioritized can be reached, e.g. national and foreign languages, mathematics, science and health, social studies, sports, aesthetic subjects, a common curriculum can be offered quite efficiently. The conditions are that the number of subjects provided should not be too large, teachers should cover several subjects, and teaching and learning should be managed in whole class groups.

A growing tendency is to specify curricula in terms of outcomes and levels of achievement rather than content. This invites the definition of a common core of educational outcomes that are thought to be essential for all those completing the cycle. Adopting a common core of outcomes at this level does not preclude variation in the content and delivery of the curriculum to recognize heterogeneity in the student population. In addition, minimum target levels of achievement, valid for all, should not be taken as maxima. Many outcomes can be achieved through different routes with different content. In many subject areas common tasks can be set where different levels of achievement are expected.

At upper secondary, on the other hand, some degree of diversification is considered a necessity. Differences in capability are likely to be most marked in some subjects like mathematics and languages, making whole class teaching of the full range of students impracticable. Students' preferences and dispositions become more manifest. And, once basic skills have been consolidated, the case for allowing differentiation to make better use of students' potential becomes stronger. Some also argue in favour of the study of fewer subjects in depth, rather than more in breadth. The policy choices that emerge are between tracking into different streams, or allowing students to choose from a variety of options or curriculum modules that can be accumulated in many different ways to build up a programme of study.

Streaming is widely practised at upper-secondary level. Most commonly there are variations of traditional arts and science, social sciences, commercial studies and a range of other possibilities, including technical subjects. If schools are large enough, streaming can be planned and managed efficiently, providing group sizes do not fall to small levels. Over-specialization can be ameliorated by retaining some core subjects and general studies offered across specializations. Also, electives may be offered within streams. Simple streaming systems limit choices to a narrow range and require that the flow of students be managed to match facilities and teaching resources available. Restricted choice can be seen as a disadvantage to the extent that it makes it difficult to subsequently change track. The fact that different streams are often also not given the same level of academic, cultural or economic recognition may also be considered problematic.

The main alternative to streaming is to organize the curriculum around options, usually supported by a common core which occupies a minority of teaching time. This can respond more flexibly to the diversity of pupils' interests and capabilities and allows an element of sampling of specializations without full commitment to a stream. If the choice of the options is left to schools, there will be variation between schools that will create differences in opportunity depending on the school attended. However, this does allow curricula specificity to the local environment and the characteristics of students. If the number of options offered and assessed in examinations is high, teaching groups are likely to be small and costs high. There are cases where, in science alone, as many as 12 options can be offered and examined, which raises questions as to whether such diversity is necessary (Caillods, Göttelmann-Duret and Lewin, 1997). It is certainly expensive.

Option and module systems can be complex to design, timetable and assess. They often carry higher overhead costs than streaming, precisely because they allow more choice. They can create difficulties for staffing, because demand for options may fluctuate widely from year to year and the substitutability of teachers between specialist options may be low. Wider choice also brings with it problems related to the basis on which such a choice should be made. If it is the students who make the choice, it may happen that young students and poorly educated parents make decisions based on idiosyncratic criteria – perceived ease or difficulty of the subject, personality of the teacher, friendship group. These choices may turn out not to be in their best interests, neither for future studies nor in terms of work opportunities. If it is the school that makes the decision, there may be a danger that the choice is made on the basis of the teachers available rather than on students' interests and relevance to the local community.

Whichever pattern of curriculum organization is chosen, a final consideration should be how secondary curricula can be designed in ways that maximize the chances of successful completion, and thus improve internal efficiency. Traditionally, curricula have been developed that assume continuous attendance and progression through grades dependent on mastery of previous material. Both these assumptions may be flawed, especially in low GER2 countries. If, in fact, attendance is irregular, e.g. for economic reasons, then learning will not be continuous and cumulative, but episodic during periods of relatively continuous attendance. If this is true then, to the extent that it is possible, curricula should be segmented into coherent learning sequences that do not depend entirely on what was learned before. This would increase the probability that those who attend irregularly could still make sense of the parts of the curriculum they experience. It is also possible to conceive of patterns of curriculum organization that deliberately include revisiting core material to increase the probability that all pupils will have a chance to achieve key learning outcomes even if they attend irregularly. This is easier if curricula are conceived more according to outcomes rather than to content.

The last curriculum issue is the question of diversification between general education and technical, vocational or other kinds of specialized provision. The costs of technical and vocational education can be notoriously high. This is usually due to the need for specialized equipment and facilities and constraints on teaching-group size in practical subjects. Costs per pupil may be several times greater than in general secondary schools. Yet there are indications that quality is often questionable and competences relevant to employment are not necessarily acquired. Some economists argue that for cost-effectiveness reasons, technical and vocational education should take place outside the school system in enterprises or in specialized centres and be managed by specialized agencies geared to meet anticipated labour-market requirements (Middleton et al., 1993). Funding from the World Bank and bilateral agencies for school-based technical and vocational education in the 1990s was modest as a result of doubts about its effectiveness. Nevertheless, the size of enrolment in such streams has not declined significantly, except in the poorest countries in Africa, which indicates that there can be a strong demand from students and families for such courses (Atchoarena and Caillods, 1999).

The policy on diversification related to technical and vocational education has to be different in economies at different levels of development. Knowledge and the variety of skill requirements increase with the development of the industrial base and the growth of the service sector employment. In sophisticated economies the trend is to reinforce the scientific and technological content of vocational courses offered at the upper-secondary level and to promote flexible specialization, since specific skills rapidly become outdated by changes in technology. The number of specialities offered is often reduced, specialization is approached by grouping large families of occupations around key competences and further specialization introduced through modules and options towards the end of the secondary course or at post-secondary level (Atchoarena and Caillods, 1999). The strategy to be adopted depends on the nature of the learning required (general and transferable, specific and complex, high or low levels of collateral knowledge and skills, rapidly changing or slowly evolving, etc.) and on how demand for knowledge and skills expresses itself in the labour market.

Resource-poor countries, on the other hand, may be better advised to match enrolments in specialized vocational schools to meet existing or foreseeable work opportunities, to find appropriate mechanisms to finance them with contributions from employing organizations, and to support a variety of non-formal training programmes that can be offered to secondary-school leavers, and to workers in the formal and informal sector of the economy.

As an alternative to traditional technical and vocational streaming, various pre-vocational subjects have been introduced into junior secondary-school curricula as electives, e.g. in Ghana, Kenya, Nigeria, Zimbabwe. These have as an objective the orientation of pupils towards self-employment and viable livelihoods, teaching them skills that could be useful for further training or income-generating activities (McGrath and King, 1995). These programmes have a mixed history. Where they are well organized, adequately resourced and have carefully thought-out curricula complementing other school subjects, they can make a valuable contribution to preparation for life after school. If these conditions are not met, they may end up being low-status costly curricula with low levels of commitment from staff and students. Many long-standing and expensive courses on bricklaying, carpentry and metal-work have thus been provided in several African schools with limited impact. As an alternative, a more imaginative approach to the development of mathematics, science and related curricula could be considered. Teaching applied mathematics (relating it to the day-to-day operations), and technologizing science education to place more stress on application could offer an opportunity to provide skills and conceptual frameworks which overlap with those provided by conventional technical and vocational education without necessarily increasing costs disproportionately (Caillods, Göttelmann-Duret and Lewin, 1997). In addition, the possibility of part-time or day-release experience in artisan workshops or in small businesses could be explored and encouraged (Hoppers, 1996).

In summary, curricula patterns do have cost implications. What these are depend partly on the structural features that are embedded in curriculum design, e.g. teaching-group size, teaching time, specialized facilities, learning materials. They also depend on how the curriculum is implemented (timetabling, management of option choice, placement of students to make efficient use of scarce facilities for particular specializations). Generally diversified and specialized curricula have higher costs than their alternatives and should therefore only be offered where they have clear benefits.

General conclusions are difficult to reach, partly because labour markets vary so widely. Adequate basic education is a prerequisite for effective vocational education and training. This favours delaying school-based specialization until after lower secondary has been successfully completed. Subsequent tracking into technical and vocational programmes must recognize the realities of current and future labour market demand and the attractiveness or otherwise of graduates of such programmes to employers. Choices have to be made which link specialized educational provision to effective demand and which consider the costs and advantages of other delivery systems (non-formal education and training, apprenticeship and other vocational courses). Given the importance of other delivery systems in providing the necessary skills to primary and lower-secondary school-leavers, youngsters who follow such courses should not be denied access to some form of secondary education later on if they meet the requirements.

- Increasing pupil/teacher ratios and class size

The overall pupil/teacher ratio in secondary schools is the main determinant of recurrent costs[7]. Increasing the average number of pupils per teacher is an option in some systems but not in others, depending on the existing pupil/teacher ratio, the distribution of pupils, teachers and schools, and the organization of the curriculum. Pupil/teacher ratios at secondary level average around 25:1 in the lowest GER2 countries and are 20:1 or less in those countries with higher GER2s (see *Chapter 2*). Though the pupil/teacher ratio is most significant for costs, it is the class size that is likely to be most significant for learning. The relationship between the two is not linear. It is determined by the teacher/class ratio (and how this is reflected in the detailed organization of teaching groups). Teacher/class ratios at secondary tend to vary between about 1.5:1 and over 3:1, largely independent of the pupil/teacher ratio.

Several analyses of test results within countries or across countries indicate that achievement is not easily associated with class size unless the differences are enormous. A plausible implication is that what matters is not so much the size of the class as what takes place within it, which is determined at least in part by the quality of teachers (Hanushek and Kim, 1996; Hanushek, 1998). In some countries, e.g. Japan and Korea, average secondary class sizes are large (over 40), and yet their achievement results in the IEA Third International Mathematics and Science Study in 1994-1995 are amongst the highest[8]. This can be interpreted as leading to the conclusion that in countries where the average class size is less than 40, increases are possible without diminution in performance. However, the maximum desirable number of pupils per class in a particular system is in reality constrained by a number of factors. These include a teacher's ability to manage learning in large classes, availability of learning material, classroom size and furniture, and patterns of curriculum organization. Though effective teaching may be achievable in some countries with class sizes of over 50, this may not be the case elsewhere.

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[7] Except in those systems where other salary and non-salary costs represent more than 50 per cent of total recurrent costs. This can be true where boarding is prevalent.

[8] Ninety per cent of Korean students are in classes of more than 40 students.

One attractive approach to answering the question as to whether average class size can be increased within a system is to identify schools with large classes which are thought to be functioning effectively in terms of appropriate indicators of performance. In many countries successful schools can be found which operate at above-average class sizes. Where this is true there is a case to consider measures to increase average class size and, *ceteris paribus*, reduce pupil/teacher ratios and costs. Considerable benefits could arise from this for access and participation – increasing the pupil/teacher ratio by 20 per cent from 25:1 to 30:1 could allow increases in participation of 10 per cent or more at no extra cost.

Low pupil/teacher ratios can coexist with large class sizes, as in China. This is possible where teaching loads in terms of hours per week are low. This in turn may be due to the existence of pedagogical activities outside of the classroom, an officially low teaching load or to a significant under-utilization of teachers. It is characteristic of high GER2 systems that teacher-per-class ratios are usually much lower than in low GER2 systems. Where teacher-per-class ratios are high (between 2:1 and 3:1), the issue this raises should not be avoided. The price of high teacher-per-class ratios is restricted access to secondary schooling.

In principle, reducing the number of teachers per class should reduce the number of teachers that need to be employed. It does imply that teachers carry out their teaching requirements, possibly that their official workload be increased. This is both a school management issue (how are teaching groups organized in relation to staffing?) and a workload issue (how many hours a week do teachers teach?).

- Improving teacher utilization

Teaching loads vary widely between systems. More importantly, available data suggest that average teaching loads often conceal wide variation from the mean. Specialized teachers restricted to particular subjects may or may not be able to fill their timetable with full class groups. Electives that require specialized teachers may be taught to small groups by teachers with few classes. If teachers are paid by the hour, as in many Latin-American countries, it may not be that important[9], but where teachers are paid a full salary, even if they teach only a few hours, this is a real issue. There may be several reasons for under-utilization. The average size of schools may be too small to allow full teaching loads across a broad pattern of curriculum specialization, option patterns may make it difficult to provide enough work for full-time specialized teachers, legal and practical impediments to teacher transfer from school to school may result in under-staffing of some schools coexisting with over-staffing in others. The solutions to these problems are often not easy to negotiate. Not to address them is to accept that opportunity to participate will be constrained by apparent shortages in teacher supply, when in reality redistribution and reorganization could significantly reduce such apparent shortages. In general, the training of teachers to teach several secondary-level subjects, coupled with the development of curriculum materials that can be taught by non-specialists (adequate teachers' guides, etc.), should increase the efficiency with which teachers can be deployed. We shall return below to the question of improved teacher deployment.

### *Increasing the teachers' workload*

Decisions about whether teachers' time on task can be increased depend on judgements of whether workloads are in fact low. Decisions have to made at a system level about what constitutes normal expectations of teachers' work in terms of numbers and size of classes taught for a given number of weeks. Somewhat paradoxically, in several francophone countries of Africa, the more qualified the teacher, the higher the salary and the lower the teaching load. A teacher qualified to teach at upper-secondary level teaches fewer periods than a teacher qualified to teach at lower-secondary level, who in turn teaches fewer hours than a primary-school teacher. This also occurs in anglophone countries, but is not as formally regulated. There may be legitimate reasons for this in terms of additional responsibilities of senior staff. It is attractive to propose norms for workloads that encourage more even distribution of teaching loads and increase the average rate of utilization of teachers. This could be achieved whilst retaining pay differentials related to qualification and expertise. It is also possible to contemplate extending the school year in terms of number of days of teaching. The official school year can vary from under 170 to over 220 days. Within these totals many teaching days may be lost to periods of registration, special events, teacher absenteeism and in-service training and examination periods. Where the total number of effective teaching days is low, and teachers have excessive vacation time compared to other professionals, both organizational and contractual reforms may be necessary.

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[9] It creates however other problems such as the teachers rushing from one school to another in order to accumulate teaching hours and income.

- Reducing average teaching costs

An alternative approach to reducing the unit cost of secondary schooling to make expansion of access more sustainable, is to diminish the average teaching costs. This could be done in several ways. Not all of these involve loss of income for individuals. If the proportion of untrained or assistant teachers is increased, average salaries will decline. This will also be true where the average age of teachers is reduced as a result of large-scale recruitment. Incomes of existing teachers will be unaffected. It should be remembered that in many countries in sub-Saharan Africa average teachers' salaries have declined in real terms as a result of pay adjustments falling behind inflation and because of the general deterioration in public-sector budgets arising from poor macro-economic performance. Where teachers' salaries are inadequate to provide incentives to teach effectively (to the extent that second jobs become common and teacher attendance problematic), cost savings arising from real reductions in salaries cannot be seriously contemplated. Reductions in average costs arising from making more efficient use of the time of trained teachers (working with teaching assistants, developing pedagogical methods that allow some periods of self-instruction and peer learning, etc., in addition to increasing teacher utilization) are more attractive.

An illustration of some of the problems is provided by the francophone countries of West Africa. Expressed in terms of GDP per capita, secondary-school teachers' salaries are relatively high in many of these countries: four times the income per capita in Madagascar, 9.5 times in Côte d'Ivoire and 10.4 times in Senegal. Reducing average salaries would go a long way towards reducing the unit costs. Côte d'Ivoire, for example, decided to cut the salaries of all newly recruited teachers in 1996, and has introduced a new salary scale for the new recruits. Mali and Senegal are now employing large numbers of 'volunteers' at the primary level, who are untrained graduates or fully trained teachers who could not be recruited because of budgetary restrictions. These teachers earn a salary that is less than half that of a normal teacher. Recently, it has been made possible for these teachers to integrate into the civil service in a separate category after having worked for four years as volunteers. At the secondary level, no similar scheme exists, but several countries are making extensive use of 'contractual' teachers. These are untrained university graduates who are appointed on a yearly basis and who receive a salary well below that of trained teachers. Most of these measures have been introduced in a context where governments could no longer recruit trained teachers at the prevailing rate due to stringent budgetary restrictions. They are possible where large numbers of unemployed university graduates are ready to work at lower salary rates than those for existing teachers. The long-term effect of such measures on teachers' motivation and on learners' achievements is still to be assessed. Provided teachers do receive effective in-service support, quality should not necessarily deteriorate. If such teachers are integrated into the civil service after a number of years in a separate lower-paid category, the effect on the unit cost will be significant.

### *Limiting non-salary costs*

Non-salary costs vary widely at secondary level. Typically, non-salary costs represent a higher proportion of school expenditure at secondary level than at primary. To the extent that this reflects the need for more expensive equipment and learning materials, this is to be expected. Where non-salary costs are more than 20-30 per cent of salary costs in non-boarding institutions, it may be thought that the balance needs questioning. It is particularly difficult to generalize about this area, because so much depends on how curricula are organized and what kinds of institutional arrangements are made to run secondary schools (food subsidies, security, site management, provision for learning materials, etc.). The most obvious source of non-salary costs that may be reduced relates to boarding, where this is not essential.

### *Increasing school size*

School size is an important determinant of cost per student. Small secondary schools are likely to suffer diseconomies of scale (leading to a low pupil/teacher ratio, and high administration costs) and are often associated with lower performance on achievement tests. However, they may be necessary as a result of population distribution or ethnic, religious, language or other segmentation within the school population. Judgements have to be made about the extent to which smallness is justified and where preferential subsidy of more expensive school places is defensible in relation to other needs. In each system there is a size of secondary school above which economies of scale cease to be attractive. Where analyses have been undertaken, they often produce results that suggest that secondary-school enrolments much below 1,000 are associated with rising costs, and that above this level costs per student fall slowly until they reach a plateau. Increasing average school size where it is small requires school-mapping exercises and setting norms on the minimum and optimum size of (lower and upper) secondary schools. The effect that the merging of schools and increasing the distance from home to school may have on rural pupils' enrolment, and on girls' enrolment in particular, has to be assessed and balanced with the possible savings that can be made on teachers and buildings. Long distances or boarding may deter some families from sending their children to school.

### *Option 3.2: Increasing efficiency*

Improving efficiency in secondary education is an essential element in making expansion of secondary education affordable. There are a number of ways of achieving this goal. First, repetition and drop-out rates can be reduced so that a larger number of youngsters can be enrolled and a higher number of graduates produced with the same level of resources. Second, teacher-management procedures can be improved and more of the existing teachers who presently do not teach can be invited to do so. Third, measures could be taken to reduce teacher absenteeism. Fourth, mechanisms could be put in place to increase the efficiency of school management.

- Reducing repetition and drop-out rates

High repetition and drop-out rates have cost implications. High levels of repetition inflate enrolments and add to total costs without necessarily leading to an improvement in pupils' achievements. Comparative studies indicate that repetition is high in some countries and low in others with otherwise comparable characteristics. It has been suggested that this is indicative of cultures of repetition[10] (Eisemon,

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[10] Repetition tends to be much higher in francophone and Latin-American countries than in countries influenced by Anglo-Saxon tradition (the UK and northern Europe).

1997), where it is anticipated that each year a significant proportion of pupils will fail to be promoted. However, reducing repetition is not a simple matter of an administrative decision to introduce automatic promotion. To be successful, policy has to be based on an understanding of the causes and consequences of the phenomenon. Repetition may result from poor-quality learning and teaching provided by schools, irregular attendance, poor mastery of the language of instruction, inappropriate selection, or many other factors. Much repetition ought to be seen as a curriculum problem. Students are being taught material in ways that result in them failing to meet promotion criteria. If there are different ways of organizing learning and teaching that are under the control of schools and would result in more pupils succeeding, then these should be encouraged. If this option does not exist, then questions have to be asked about whether the standards expected for promotion are unrealistic and unattainable. If so, curricula should be adjusted to reflect the needs and capabilities of students so that most can succeed in being promoted. To allow high rates of repetition to persist is to deny opportunity to those who are excluded as a result of school places being occupied by repeaters. High repetition rates around secondary selection examinations raise slightly different issues. However, even in this case, it seems reasonable to place limits on the number of times repetition is permitted at public expense.

Drop-out has a different impact on costs. Where drop-out is high, total costs are reduced. However, the costs per successful school graduate will be high. Many of the reasons for drop-out are external to school systems. Those factors that are located in schools should be the subject of policy interventions, since wastage is a source of inefficiency. Depending on the system, these factors are likely to include the level of the direct costs of attendance, policy on promotion from grade to grade, the quality and relevance of the curriculum, and the conditions under which learning and teaching take place.

- Improving teacher management

The second consideration concerns teacher management issues. Attempts to improve patterns of resource allocation imply that headteachers and administrative officers at central and regional level may have to be trained to become more resource-sensitive and accountable. Procedures for transferring teachers may have to be revised and regulations concerning appointment, transfer and dismissal changed. Decentralized recruitment of teachers by headteachers or school boards is often suggested as a way of increasing efficiency and effectiveness. However, there is no clear evidence that such systems necessarily result in efficiency gains. Where there is a weak infrastructure and ineffective checks and balances on procedure, individual and group self-interest may not produce more equitable and efficient staffing of schools if decision-making is decentralized.

Audits undertaken in some countries show significant numbers of teachers who continue to be paid on the budget of an establishment without actually teaching there. This may be because some are working at the regional or central level of administration, others are held in reserve and supposed to be available to replace teachers on long sick leave. Some may have been transferred to another part of the public administrative service or work at the political or community level. Some may simply be ghost workers on the payroll but not available to work. Some estimates suggest that the number of teachers who do not teach, although they are paid on a school budget, can vary between 5 and 20 per cent, depending on the country and the level of education. Knowing how many teachers are in which category would help in estimating what scope there is for adjustment. Correcting these kinds of anomalies in teacher employment would make it possible to expand access to secondary education without increasing the budget.

- Ensuring effective school management

Effective school management is central to the control of costs designed to generate best value for money for public investment in secondary schools. Where historic rather than formula-based funding is employed to determine school staffing, imbalances in staffing (and pupil/teacher ratios and hence costs) are likely to persist. High ratios of costs between secondary and primary-school systems have their origins in different staffing and working practices, as discussed above. Some of these practices are difficult to defend, except on a historical basis. It ought to be possible to organize secondary schooling, especially at the lower-secondary level, in such a way that levels of cost per student are less than twice those of primary. This is the case in most high GER2 countries.

The introduction of manageable needs-based formula-funding systems may help redistribute and reduce costs arising from an uneven distribution of teachers. Unless and until administrative systems which provide resources to schools are regulated by cost-sensitive procedures and there are incentives for decision-makers to favour cost-saving options, access will continue to be constrained by costs higher than they might otherwise be. Needs-based resource allocation is increasingly practised in developed countries (Ross and Levacic, 1999). Its attractions are that it does allow transparency and monitoring of resource allocation and should result in more equitable levels of cost per student across systems than other methods. It can be tailored to direct resources to areas of special need and to compensate for relative deprivation. Some caution is needed in adopting the more complex forms of formula funding. These depend on robust and effective data collection and information-management systems that are not available in many developing countries. However, simple forms of formula-funding are viable and can be adopted. Various other approaches to budgeting systems that offer improvements over historic or incremental approaches are reviewed in Penrose (1993).

- Various measures to improve efficiency

Other measures aiming at improving efficiency within the same level of costs can be listed. It is important to reduce teacher absenteeism where it is high through better supervision, either by the principal or the community. This should increase school effectiveness and hence efficiency. Increasing the number of hours of teaching in the year, thus raising students' opportunities to learn, has already been mentioned as an option. Increasing pupils' time-on-task (the amount of time within a class period which is devoted to actual teaching and learning) is another attractive possibility. This may require changes in the way teachers structure their teaching time (Anderson, 1990). It thus has to be supported by initial and in-service teacher training. Offering teachers incentives to improve student performance is another line of action worth investigating. Some systems already provide bonus payments to those who demonstrate the most effective performance. It has also been argued that private schools can perform more effectively than public schools although they may not necessarily have better resources, more qualified teachers or lower pupil/class ratios (Jimenez et al., 1991). If this is true, it is possible that this is because they organize school and teaching more efficiently, and because teachers have other incentives to perform than those offered in public schools.

In conclusion, all of the measures suggested above require effective management of school systems, at central, regional and institutional level. Better school leadership in particular can help address many problems of low school efficiency and higher-than-necessary costs. Postlethwaite and Ross (1992) have argued that more effective schools have principals who are able to gain students' and parental support for school goals and who place emphasis on staff development and accountability. Other data (Jimenez and Sawada, 1998) suggest that innovations that involve communities in school management can improve attendance rates amongst pupils and teachers and do not affect pupil performance adversely. Problems of under-utilization of teachers' equipment and facilities, lack of discipline and lost learning time, teacher absenteeism, poor curriculum co-ordination, and ineffective supervision, may be best addressed by focusing on the quality of school leadership and the skills and incentives that might make school management more efficient and cost-conscious.

### *Option 3.3: Reducing capital costs*

The preceding analysis has not considered capital costs. The capital costs of financing and equipping new secondary schools are widely seen as a constraint on the expansion of secondary schooling. Typically, secondary-school building costs are much higher than those for primary schools. There are several reasons for this.

First, the design of conventional secondary schools includes common and specialized facilities and space not usually provided at primary level. In addition to the ordinary teaching space, such schools often have administration blocks, service areas, boarding hostels, specialized teaching rooms, workshops, science laboratories, language laboratories, libraries, kitchens, assembly halls, staff rooms, and sports facilities. Available data suggest that the area per pupil required at the secondary level (for one shift) ranges from 4 to 8 square metres, compared to 1.5 to 3 square metres at the primary level. Since secondary schools are often built in urban or semi-urban areas, the cost of land can be substantial. Whilst primary schools are often constructed using local materials, this is rarely the case for secondary schools. In towns where land is scarce, multi-storey buildings have to be constructed which make the use of steel and concrete necessary.

Second, it is estimated that more than half of the new primary classrooms built every year in Africa or South Asia are community-supported, using local labour and raw materials. The same sense of community identification does not necessarily exist for a secondary school located in an urban area enrolling children from wide catchment areas that extend over several communities. It is the case in several francophone countries of Africa that until recently most of the lower- and upper-secondary schools had been built by the state. The new policy emphasis on decentralization gives more responsibility in respect of school construction to districts and departments, but the funds still have to be transferred from the central level. The tradition of communities building their own secondary schools is much more widespread in anglophone Africa and some lessons can be drawn from the experiences of Zimbabwe, Kenya and Botswana.

Third, the amount of equipment, learning materials and teaching aids needed to furnish a conventional secondary school is much greater than in a primary school in total and per student. These also carry higher maintenance and replacement costs.

Fourth, in many countries external assistance was used to finance secondary-school building before the shift in emphasis to primary schooling after the Jomtien conference. Often the designs chosen reflected a combination of the characteristics of the first generation of secondary schools established by colonial governments (boarding, extensive sports facilities, large assembly halls), overlaid by the influence of more recent developments in metropolitan countries (language laboratories, computer lounges, etc.). The image of what a secondary school should look like is still very much influenced by norms that reflect those used in developed countries, reinforced by the type of construction that foreign loans and grants have been used to finance. The foreign exchange component of construction is often high given the materials used and the nature of the equipment chosen.

Some indication of the magnitude of costs is given in a recent analysis of science laboratories in different countries (Caillods, Göttelmann-Duret and Lewin, 1997). This suggests that fully equipped physics laboratories can vary in cost from around US$20,000 to US$144,000, depending on the country and standard of construction. The average for the African countries in the sample was over US$60,000. These costs can be 500 times or more greater than the recurrent per capita cost of a secondary-school place.

Expansion of access to secondary schooling is likely to require some reconsideration of capital costs. In the long term this problem is less significant than the recurrent cost burden of expansion, since buildings and other infrastructure should have a long lifetime. Nevertheless, in the short term, high capital costs will place stress on development budgets. There appear to be several options in considering how to reduce the capital costs of expanding access to secondary schooling. These include the following options.

In some countries it is feasible to consider adding buildings to already well-constructed primary school facilities. This could allow lower-secondary grades to be accommodated at lower cost than with the construction of a new facility. Economies would be made through access to existing site services and infrastructure and the sharing of their costs. Depending on the nature of the lower-secondary curriculum, the addition of classrooms and some special facilities could provide a cost-effective alternative to high-cost secondary-school construction.

Community-based organizations do finance school building in some countries. It may be possible to encourage this further. Religious bodies, self-help groups, and other NGOs have all constructed secondary schools with and without subsidy in anglophone Africa and in parts of Asia. Communities in Kenya, Botswana, Nigeria, Cameroon, Zimbabwe and in Nepal have undertaken to raise funds to build junior secondary schools when faced with the government's inability to provide schools in particular locations (Bray, 1996). Financial and other resources are raised by groups in different ways, which include donations, fixed levies and fund-raising events, and which have been used to create new schools, or to extend existing ones. Some governments have a laissez-faire approach to community mobilization, while others offer encouragement and direct support. Laissez-faire approaches can produce inefficient patterns of school location and organization, especially where the recurrent cost is borne from central funds. This is the case where it is assumed that if a school is built it will be staffed no matter how small or close to another school. In the absence of compensatory policies, laissez-faire approaches will benefit richer and more cohesive communities able to mobilize resources. Poor and disorganized communities will fail to do so and have reduced access to secondary schools as a result. Governments can stimulate and support community financing through tax exemption, provision of materials, building components and technical advice, through per capita grants, as in Zimbabwe, or through matching grants.

School premises are rented in a number of countries, especially in Latin America and the Middle East and this strategy has been used to expand secondary-education facilities. However rents can be high and become a burden on the recurrent budget. They necessarily include an element of profit for the landlord which could otherwise be retained and invested in school quality. There can also be a major drawback in that rented property is often not designed for school use, having an inappropriate disposition of space. If the state is not the owner, building modifications may not be possible. Hence, where feasible, renting premises should be considered as a short-term option.

Double-shifting schools can enable considerable savings in land and building costs. Where schools are double-shifted, capacity can be doubled at marginal additional cost. Double-shifting is only feasible in fairly high-density population areas and in cities where the cost of land is high. In rural areas the school-age population may not be sufficiently important to allow such practice. There are many different ways of organizing double-shifting and the benefits as well as the drawbacks depend on which mode is chosen. Some common critiques are that students become tired during afternoon sessions and do not benefit as much as morning-shift students (but shifts can be alternated); the official teaching time may have to be shortened to allow the second group of students to leave before nightfall (this depends on the actual length of the school day and breaks); the timetable may preclude any tutorial and extra-curricular activities taking place after school (though if separate staff are involved in each shift, scope still exists); facilities and equipment get run down much more quickly and maintenance may become a real issue (though the per capita cost of maintenance is likely to fall); morning-school youngsters are left by themselves in the street and can create social problems. On the other hand, youngsters from the poorest households who can generate family income may benefit from half-day schooling; it may also allow others to complement their general schooling with vocational courses (as is envisaged in Argentina and Brazil).

If expanded access is prioritized and capital is a constraint, double shifting is attractive in resource-poor countries. It can be managed in ways that reduce its disadvantages, especially if increased funds are allocated for maintenance and replacement of equipment, a separate vice-principal is appointed for each shift, and teachers are not teaching throughout both shifts (Bray, 2000). Double-shifting can be used during the period of rapid expansion in access to secondary schooling and be replaced later on by single-shift secondary schooling, as was done in Malaysia.

The design of secondary-school buildings is central to the capital-cost problems of expansion. It is widely recognized that adopting metropolitan standards of design and construction produces excessive building and maintenance costs. Where finance has been provided externally through loans and grants, costs for secondary schools sometimes escalate to levels that are as much as eight times the cost of a local construction, especially where contractors are internationally based companies (Beynon, 1997). It ought to be possible to continue to encourage lower-cost design and construction, suited to an environment with low maintenance costs. Recurrent costs for maintenance have to be sustainable in any effective building programme designed to extend access. In part, this implies developing standardized building designs, components, as well as equipment and furniture. This should result in better-quality buildings, and better cost control (Beynon, 1997).

### *Option 3.4: Alternative modes of delivery*

Even with some or all of the measures discussed above, expanded access to secondary schooling will remain problematic in the low GER2 countries. In these countries and some others, imaginable cost reductions will not be enough to create access to secondary schooling for the majority, nor will the effects of cost reductions be felt immediately. Expanding secondary education in low population-density rural areas in low- and middle-income countries is also difficult if it requires the maintenance of high-cost boarding facilities. Offering suitable and flexible schooling alternatives to secondary-age youth who are working is another challenge.

In such circumstances alternative delivery systems to expand access become an attractive option. Examples exist of experiments using conventional mail-based distance education, radio- and television-based systems, part-time and evening study, self-financing community schools, non-formal programmes for working children, and various kinds of mixed-mode systems combining individual learning with residential tutoring. Information technology and the development of the Internet is rapidly opening up other possibilities. Many of these systems are able to provide access both to primary-school leavers and young working adults who have left school and require study at the secondary level to obtain a better job, or to acquire particular skills.

Night schooling is one of the main alternatives used. It is common practice in Latin-American cities. Schools offer working adults the possibility of attending classes late in the evening, following the secondary programmes in an accelerated fashion (four years instead of six). Lately, these programmes seem to be increasingly attended by youngsters of secondary-school age who have to work during the day to make a living[11]. However, such programmes have a reputation of low quality, and suffer from high attrition and low pass rates. Evening classes are also widespread in China and are directed towards those wishing to upgrade their qualifications at secondary level and above. Clearly these kinds of system offer a second chance to those who fail to complete secondary schooling and have to work, whatever their age may be. But they cannot be considered as a long-lasting alternative to day schooling for school-age children.

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[11] Sixty-six per cent of secondary-school students in Brazil attend night schools (Leonardos, 1999).

Self-financing community schools are another alternative form of secondary-school provision. Communities generate funds to construct a school and recruit their own teachers. This can create a cost burden that is difficult to sustain after the initial enthusiasm has disappeared, especially if the establishment of such institutions is closely associated with charismatic leaders who then move on to other activities. Many of such schools provide curricula which shadow those in public schools and prepare students for the same examinations; sooner or later communities press for them to be integrated into the state system (as the Harambee schools were in Kenya).

Several experimental programmes in the past have tried to prepare youngsters for secondary-school examinations at the same time as developing work-related skills (e.g. the Youth Polytechnics in Kenya, the Brigades in Botswana in the 1970s). Their record of success has been mixed; running such programmes has turned out to be quite expensive and many of them have remained limited in scale (Bray and Lillis, 1988). These kinds of post-primary initiatives seem to have become less common in Africa. Related programmes exist in several Latin-American countries, often run by religious organizations and other NGOs. They can succeed in educating and training youth from marginalized groups, but again most operate on a limited scale.

Secondary radio- and TV-based programmes exist in developed countries, with a few in middle-income countries such as Colombia, Mexico (Telesecundaria), and Brazil (Telecurso). The potential of such programmes is vast for older students and as a support and complement to schooling. They work best in countries where the mail is functioning properly, and where TV and radio are widespread. However, their utility appears more limited if they are used as a sole medium of instruction for younger students of lower-secondary age who require more structured support and contact with adults to learn effectively. Several television programmes therefore combine individual learning with tutoring. The Telesecundaria in Mexico is a good example. It has been in operation since the mid-1960s and enrols nearly a million youngsters in the rural areas. Teaching and learning takes place combining the uses of TV, teaching materials and a tutor, who is a primary-school teacher. Each learning session starts with a 15-minute TV programme followed by a discussion with the tutor. Results seem quite encouraging: although retention rates are lower than in conventional schools, achievement levels in reading and mathematics in the third grade seem to be identical.

Programmes that combine individual learning with systematic tutoring have obvious attractions whether they use the television or not. If self- and peer-group study can be alternated with more conventional face-to-face tuition, costs should be lower and access easier. Several countries as diverse as Indonesia, Argentina, Mexico and Zambia have experimented with various kinds of distance-education systems, combining a distance course with tutoring. The Open Junior Secondary-school system in Indonesia enrols 400,000 of the 13 to 18 year-olds who are out of school. It is expected to expand to up to 2.5 million. The learner receives a set of teaching materials and studies either individually or in a learning group under the supervision of a facilitator, normally the headteacher of a local primary school. In addition, the learner is expected to go once or twice a week to the nearest junior-secondary school to study with the various subject teachers. The pass rates observed so far are similar to those in conventional secondary schools, but the unit costs are roughly half of those in the conventional system (Sadiman, 1999).

In remote rural areas of Argentina where a similar approach is used, students meet in their primary school under the supervision of a tutor who is a primary-school teacher. They learn from specially prepared teaching materials and receive visits from a subject teacher in the school once a week. In this case the cost is higher than in a conventional day secondary school. This is because the pupil/tutor ratio can be extremely low and is often below 10. The costs are nevertheless lower than they would be if boarding facilities were to be provided (Golzman and Jacinto, 1999). Innovative approaches to learning and teaching are used which include multi-grade teaching at secondary level, co-operative teaching, and programmed learning. The impact on learning achievements is not yet known. However, the effect on retention appears positive.

All programmes are not equally successful. Advantages and disadvantages, as well as costs, have to be weighed carefully before adopting alternative delivery systems on a large scale in a resource-poor country. The example of the Malawi College of Distance Education is well known and cited in the case study in this book. In this system until recently pupils attended distance-learning centres under the supervision of tutors, who were generally promoted primary teachers. Packs of self-study learning materials were made available to pupils. Early evaluations of this system suggested that it was an attractive alternative to normal government secondary schooling and that costs were much lower (Murphy, 1988). By the late 1990s the character of the MCDE had changed. Study centres were designated as community day secondary schools, reflecting the reality that they were functioning more like normal schools than self-study centres, albeit with very high pupil/teacher ratios and class sizes often exceeding 100. It had also become clear that though the public cost of the MCDE system was about 35 per cent of the cost per student in most government schools, its total costs per student were comparable or greater than those in government schools. In this system most of the cost burden is being borne privately by parents. Most worryingly, the cost per successful graduate in the MCDE system was extremely high as a result of the very low pass rates, which were between 5 and 10 per cent for the secondary school leaving examination. In this case it seems that it has proved impossible to sustain on a large scale the original idea of delivering secondary schooling effectively using a mixed-mode approach.

Reviews of distance and mixed-mode learning programmes at secondary level indicate that costs and efficiency are not always lower than those found in conventional systems (Rumble, 1997). They can provide expanded opportunities at lower costs than conventional schooling, but may deliver less than they promised in this respect. These kinds of initiatives often make assumptions about infrastructure, motivation and methods of learning that prove difficult to realize in practice. They also seem to many consumers of educational services as second-best alternatives to conventional schooling. They appear to work better in middle-income countries where it is possible to provide tutors, technology and teaching materials in sufficient numbers, than in countries that do not even have enough resources for their own conventional school system.

This brief review of some of the most commonly discussed alternative modes of delivery of secondary-level educational services does not immediately point to radical solutions to problems of access in low GER2 countries. More research may still be needed to ascertain the validity of some of these models before diverting many resources from impoverished secondary-school systems towards insufficiently tested patterns of delivery which have high start-up and infrastructure costs. There is nevertheless scope for thinking creatively about the development of secondary schooling in ways which do take advantage of some of the opportunities offered by different modes of delivery. Expensive teacher time can be complemented and extended by use of self-instructional material, radio, video and television programmes as well as Internet services, where these are available. Out-of-school populations can be reached through mass media and non-formal learning centres. But the real challenge seems to remain as to how to bring down to a sustainable level the costs of delivering secondary schooling of a broadly conventional kind to the majority of the population. The fact that some relatively poor countries have achieved this (Sri Lanka and China in the case studies) illustrates that this is possible. Alternatively it will be necessary to mobilize some new sources of funding.

### Option 4: Cost recovery and community contributions

One of the implications of the analysis of the policy framework for expanded secondary schooling is that the public resources available are severely constrained where GER2s are lowest. We have considered the scope for redistribution within the education budget and for efficiency savings. An additional option is to encourage non-government contributions to costs and other resource needs. There is an extensive literature that explores the possibilities and analyzes the characteristics of different approaches (e.g. Thobani, 1984; World Bank, 1986; Colclough, 1991, 1996; Woodhall, 1991; Hinchliffe, 1993; Lewin, 1995; Bray, 1996). These include various kinds of tuition fees, loans, community-based contributions in cash and kind, and the development of private schooling. All of these have the potential to complement public expenditure and support secondary expansion. Each has specific advantages and disadvantages, which can vary from system to system.

There are three main arguments advanced to justify increased levels of subsidy for educational services from outside the public education budget. These are first that post-primary education is often associated with high rates of private returns. It is reasonable to expect those who benefit most to share the costs. Second, cost-recovery mechanisms can be used to increase total expenditure at little or no additional public cost and/or substitute private spending for public funding. Third, charging for services will increase accountability, improve quality, and enhance the value for money obtained from public investment.

The first point is widely made. It is generally true that private returns for secondary schooling are greater than social returns. Those who participate at secondary level are also likely to come from families with above-average incomes. However, the detailed argument about the extent to which this alone justifies particular policies of cost-recovery, loans, etc., is complex, particularly if participation of students from lower socio-economic backgrounds is to be encouraged.

On the second point, charging for educational services may increase total educational expenditure over what it would otherwise be. Thus, where private schooling is encouraged, and is genuinely private in the sense that the bulk of the costs are met from private resources, it is true that this reduces the demand on public funds and public school places. If significant fee income can be raised in public schools without adverse effects on participation, more students can be enrolled at a given level of public unit costs. There is an assumption that public and private (or community-based) financing are largely independent of each other and that increased private costs will not be accompanied by reduced public subsidy.

Charging those who benefit directly for educational services, rather than financing them indirectly through the public taxation system, is the most common form of cost recovery. It is usually argued that accountability of the providing agencies (schools, training colleges, tertiary institutions) to their students, parents and, occasionally, employers, is improved. Parents and students are expected to value schooling more, and exert pressure on schools and teachers to maintain quality, if they are made aware of the costs and pay part of these on a current or deferred basis. They become more directly concerned with 'value for money', since it is clear how their money is being spent.

There are a number of critiques of these presumed advantages. First, it is supposed that parents and students will be prepared to pay more of the direct costs of education than they currently accept if by so doing they obtain some benefit. In a simple world these benefits would be reflected in the expected returns to individuals in income and social status from additional schooling of higher quality. The problem is that the benefit is more obviously individual rather than collective. There is no necessity for cost recovery to result in pressure to make decisions in the collective interest. An obvious example relates to the education of girls. Decreasing public cost, by partial recovery through the payment of fees, is likely to suppress enrolments, despite the well-known externalities associated with increased schooling for females (e.g. improved child nutrition, reduced infant mortality, reduced population growth). Rates of private return would be perceived to be lowest in precisely those communities which educated girls least. Similarly, though the economic returns to achieving universal literacy amongst the last 10 per cent of a population are likely to be low, the social utility may be high. Attempts to recover these kinds of costs may simply be counter-productive.

Of course, there will be cases where parents and students will happily, or at least willingly, pay additional costs if these appear to offer some comparative advantage in the race for selection that many formal education systems have become. Private tuition fees offer the most obvious example of how educational markets may emerge and how they may behave if they are unregulated. The rationale for paying tuition bills is rarely expressed in terms of a search for knowledge and enlightenment; its purpose is to gain an advantage for individual students over others in the competition for the highest grades (or at least to reduce the probability of starting with a disadvantage if most other students have tuition).

Second, a belief that recovering costs can increase accountability usually assumes that parents and pupils can discriminate between high- and low-quality educational services and have a real choice. This is unlikely to be true in the rural areas of countries where GER2s are very low and the choice may be to attend one school or none, and where distance, cost, ethnic and religious criteria may restrict access to different institutions. Poorly educated parents seem unlikely to be in a position to judge school-effectiveness. Even the well educated may not have the time, energy or insight to be well informed about what are thought to be the most effective methods of teaching different curricula. They will find it difficult, unless they themselves have had some experience of trying to teach children of different ages. Access to information (and the ability to interpret it) may also be problematic. The most elementary information needed in order to be able to compare the performance of schools is often lacking.

Third, equity may suffer if the direct costs of attendance increase. However, enrolments from amongst the poorest households may be discouraged. Those who are enrolled may characteristically be male rather than female, and higher costs may skew the social composition of those who proceed through secondary schooling. If this is so, efficiency may also suffer in the sense that students are selected from a restricted group which excludes those who may have similar capabilities, on the basis of ability to pay. It is also probable that differences in standards of provision between relatively rich and poor communities will increase, the greater the proportion of costs financed by those communities.

These problems have different levels of significance for the policy debate in different countries about the extent to which expanded secondary schooling can be financed from outside the public budget. It is useful to review the range of possible mechanisms that are identified in the case studies and the literature. *Table 10.2* classifies the main methods of capturing additional finance and non-monetary resources to support schooling.

Table 10.2. Examples of cost-recovery mechanisms

| Description | Comment |
|---|---|
| Tuition fees | Many countries have nominal fees in public schools that represent a small part of the total costs. Fees are generally higher in private schools, even in those which are government aided. Fees can be quite low in non-government aided schools and at tertiary levels. Fees may be coupled with loan schemes and scholarships/bursaries for low-income students. |
| Fees for textbooks/learning materials | Charging for textbook loans; reducing/eliminating subsidies to commercial publishers; charging for material consumed, e.g. in domestic science; charging for writing materials (exercise books/slates). |
| Payments for school feeding programmes | Reducing/eliminating subsidies on school meals. |
| Charges for the use of facilities | Sports facilities fees; music tuition; school visits; fieldwork trips; charges for use of school premises for private tuition, rental of premises to businesses. |
| Boarding fees | Reducing/eliminating subsidies for boarding, especially at higher levels. |
| Sale of goods and services | Agricultural production; workshop production. |
| School-run businesses | Substitution by staff/students of self-help for previously commercial services; association of schools with productive enterprises, e.g. as in China; charging for pre-school. |
| Contributions of labour | Parental/community contributions of labour time for construction and maintenance. |
| Contributions of materials | Parental/community/local business contributions of materials for construction/maintenance/library, etc. |
| Local educational taxes | Taxes on salaried employees; taxes on local production, marketing, sales. |
| Taxes on the educated or their employers | Graduate taxes on individuals; levies on employers of educated workers. |
| PTA levies | Funds raised by PTAs (parental membership). |
| Old Student Associations | Funds raised by OSAs (alumni). |
| School Development Societies | Funds raised by SDSs (community membership). |
| Other voluntary fund-raising | NGOs, local welfare clubs, churches, etc. |

The case studies give some indication of current practice and the opportunities and constraints that affect each mechanism. Considering each of these in turn we note that:

Tuition fees vary from being a small proportion of total costs, e.g. in Malawi and Sri Lanka, to being very significant (Zimbabwe and, for some students, China). Where there is evidence of excess demand and income levels are high enough, the case for increasing fee contributions for secondary schooling seems convincing. The experience of the rapid growth of the MCDE system in Malawi suggests that even in this poor economy many parents are willing to pay high fees for the chance of attending poor-quality secondary schools. If this source of income could be directed towards supporting more efficient schools of higher quality, it seems likely the public interest would be better served. In general, it is clear that fee levels have to be affordable and that some system of exemption, subsidy or scholarship is needed to ensure participation of the poorest.

It should be noted that on average about 10 per cent of secondary schooling is provided privately (World Bank, 1998). The share is much higher in several of the French-speaking African countries where the state has proven unable to provide enough school places (25 per cent of lower-secondary enrolments in Senegal, 32 per cent in Burkina Faso, 38 per cent in Côte d'Ivoire). The share is even higher in Madagascar, but there it reflects more of a distrust in the quality of public secondary schools. James (1993) has argued that the proportions of enrolments in private schooling can be linked to combinations of the existence of excess demand, differentiated demand in heterogeneous communities competing for educational opportunity, non-profit entrepreneurship, and government policies. Her analysis supports these propositions, but it is clear that the weighting of these factors as explanations must differ considerably between countries. Government policies can clearly encourage or discourage growth in private schooling through subsidies and tax regimes. When there is some private schooling, enrolments are higher where government allocations to education are lower. James' data do not show clear links with income distribution, although this may be a factor in some countries (ibid.). Where public schooling is of poor quality and income distribution skewed, those with sufficient resources are more likely to opt out of state education. Cummings (1995) argues that most East-Asian countries that have grown rapidly have substantial private school provision and that this has contributed to their ability to provide access to most students without unsustainable growth of public educational expenditure. He also notes that private supplementary provision is widespread and culturally familiar. Most of the countries that raise more than 10 per cent of the cost of higher education from students are in Asia. In many of these countries, parents and students are both willing and able to allocate substantial amounts of money and time to tuition that complements schooling rather than replaces it and probably improves achievement levels. Private tuition costs paid by large numbers of parents in some of these countries almost certainly exceed the level of investment per student made by the state (Bray, 1999).

Similar arguments apply to fees for textbooks and learning materials. Free textbook systems, which deliver sufficient books to all children, are unusual. Sri Lanka is one case where this is possible. In most others, books are purchased by students in the market, sometimes at a subsidized price. The issue here would seem to be: what is the most cost-effective way of ensuring that most pupils have access to the necessary learning materials? Where government production and distribution systems appear unable to deliver sufficient quantities of books, etc., it may be preferable to encourage the market to produce materials for sale and to facilitate individual and school block purchases. Clearly, the recurrent budgets available at school level should be sufficient to provide a basic stock of learning material. Schools can operate textbook loan schemes with discounted payments for returned books.

School feeding programmes can be very expensive if they are non-selective. The costs often exceed those for salaries. The case for parental contribution to the cost of food is strong, except where levels of poverty and cash income are very low. Obviously, adequate nutrition is essential, but this would seem to be an area where selective rather than general subsidy is appropriate.

Income generation from the use of school facilities is a marginal source of funds in all the case studies, except in China. Significant numbers of schools in China generate large sums from deployment of school assets (buildings and land). But these schools are typically urban and in areas where property rents are high. There may also be some problems, which arise from the degrading of school facilities (e.g. loss of space) as a result of commercial use. Nevertheless, where it is possible to make more use of facilities in a cost-effective way, this would seem desirable, given that a school should not remain unoccupied for many weeks in the year.

Boarding costs exceed those of teaching students, as in Malawi. Unless boarding is essential (population density, access to schools), there is a strong case for reductions in the proportion of boarders, in favour of expanded access. It also seems appropriate to encourage parental contribution where boarding is necessary and where there is evidence of ability to pay.

The other possibilities fall into four areas. The first, sale of goods and services produced by schools. This can make a contribution to secondary-school financing (through cash income, the production of food for sale or consumption, etc.). However, in most cases, the contributions are likely to be small. What can be achieved is partly a question of the resources available (land, workshops, etc.), and of skill, organization and enthusiasm. It is also a question of whether it is an appropriate use of the time of students to devote energy to productive activities that may distract from other forms of learning. School-run businesses in China can generate substantial incomes, but these are usually unrelated to the process of schooling – they are better thought of as subsidiary companies associated with the school. The exception is where external students are accepted for fee payments, and these students are taught by teachers in the school.

Second, the encouragement of community contributions to school construction in the form of labour and materials is widely advocated. This is often more difficult at secondary level than primary. The main reasons are that secondary schools often require higher standards of construction, especially for specialized facilities. They also often serve wider catchment areas than primary schools and there may therefore be less of a sense of a school belonging to a particular community. Nevertheless, such contributions can be significant as they have been in Kenya (Harambee schools) and in Zimbabwe. Where they are organized, they can however result in differences emerging between schools which reflect the relative wealth and willingness of different communities to support education.

Third, local taxes are levied in different forms. They are widely used in China, and to a lesser extent in Zimbabwe (in the sense that responsible school authorities collect and disburse money). There is no local taxation of this kind in Sri Lanka or Malawi. Fourth, parent-teacher associations, alumni groups and other voluntary fund-raisers do make contributions. These vary greatly between schools and are an unpredictable source of funding.

Five issues concerning cost recovery and the state policy seem to stand out. First, a view has to be taken of the role the state plays in limiting inequality and promoting equity in educational provision. The greater the commitment to equity the less attractive many forms of cost recovery will be if applied to the basic education cycle (which may include lower secondary). Equity will demand that access to education will not be rationed by price. The most common way to ensure this is to introduce means-tested fee waivers, scholarships, etc. These will all be less efficient than simply financing school places out of the general tax revenue. Above the basic education cycle the balance of advantage may change and some forms of cost recovery become more attractive without diminishing equity.

Second, the impact of cost-recovery reforms on efficiency requires careful consideration. If participation is limited by fees, efficiency may suffer. Some types of investment in education may not be made by individuals if costs are increased, even though at the social level the benefits may appear substantial. The education of girls and participation in teacher training are particular cases that illustrate this.

Third, the justification for introducing cost recovery will vary from country to country. The case that can be made will depend on a mixture of considerations that include: the availability of public funds and the willingness to allocate them to education; the magnitude and distribution of disposable income; the level of private contributions to total educational costs; and the quality of the infrastructure needed. It is particularly important to consider how private expenditures may change as and when public expenditure patterns are shifted. It is also important to establish whether cost recovery actually increases total investment in education. Some analyses suggest (Penrose, 1998) that cost sharing helps to conceal inefficiencies and rigidities in public finance systems, infrequently results in transfers which favour more participation by the poor, and can have negative consequences for demand.

Fourth, states face a kind of paradox in judging appropriate levels of cost recovery. If these are small, and represent only a small percentage of total costs, they will only make a marginal impact on the financing of the system. Moreover, small levels of contribution may not engender the kind of accountability that would make a difference to educational standards and value for money. If the levels are high, the possible adverse effects on equity and efficiency may be substantial. The logic of the situation will lead to an erosion of state control in favour of control by those who pay or their representatives. If this is resisted, then the benefits attributed to greater local accountability will be lost. If it is accepted, the state has to consider how to react to local policies that diverge from national ones, be they on admissions, staffing, curriculum, or facilities for different students.

Finally, the arguments for and against different forms of cost recovery have an ideological dimension. They are intimately bound up with views on the role of the state in providing social services, and in investing in human resource development for the future. They also take into account the behaviour of individuals, the extent to which they presume their behaviour is motivated by economic considerations, and the degree to which educational services can be subjected to market-like influences. Clarifying the empirical basis for these suppositions in different societies is a good starting point for deciding what role the state can and should play in cost recovery to finance education.

### Option 5: Call on external assistance

A last possibility for financing the development of secondary education is external assistance. In the decade since the World Conference on Education, many bilateral donors and the development banks have encouraged governments to place a high priority on the Education for All agenda. This has led to increased support for externally assisted primary and basic education programmes, especially in those countries where GER1 has been low. By 1995 it was estimated that an additional $1 billion was being allocated by leading donors to basic education projects when compared to 1990. Though substantial, this fell short of the target set, which was closer to $2 billion needed annually, to achieve the goal of schooling for all (Colclough with Lewin, 1993). It would be difficult to show that the emphasis on basic education has 'crowded out' allocation to other levels, not least because many basic education projects have begun to include lower-secondary grades. However, it is clear from recent policy statements on assistance that secondary education has yet to be placed in the foreground as a critical area of need. It is also the case that most low GER2 countries have large-scale externally supported basic education programmes (often with support from several sources), and relatively few complementary investment programmes focused on secondary.

Sector-Wide Approaches (SWAs) are increasingly being favoured for support to the education sector. The logic of SWAs is, at least in part, that governments can define priorities and request assistance over the medium term. If this tendency becomes a reality in most developing countries, and if the concern for low participation in secondary expressed in this book is shared by recipient governments, then the SWA process will ensure that this emerges as an important arena for assistance. It will not be possible to focus on Education for All issues to the exclusion of problems at other educational levels, as hypothetically could be the case with project-based approaches. It is therefore possible to contemplate forms of general recurrent budgetary support, at least during periods of transition, provided that these hold out the expectation of sustainable financing in the long run. This is an area where the special needs of secondary schooling may find expression in SWAs, along with strategies to limit the growth of recurrent costs to manageable levels.

In the past, most external assistance to education supported development budgets, which financed school building and other infrastructure projects. Without adequate financing of development costs it is obvious that the capacity and the quality of available facilities will be constrained. The discussion above outlines some of the considerations that need to be recognized in supporting new building and equipment purchases. The extent to which these require foreign exchange should be one of the considerations. Appropriate building design and associated maintenance costs should be another, suitably differentiated to reflect decisions about the structure of secondary schooling (location and length of lower- and upper-secondary cycles, etc.).

It should be noted however that capital constraints are unlikely to be the most important limiting factor for strategies of growth in access and participation at secondary level. It is the recurrent cost burden that will normally place an upper limit on what is sustainable. In which particular areas would it be especially appropriate or inappropriate to call on external assistance in addition to that related to SWAs through recurrent and development budgets? Several factors have to be taken into consideration:

First, in the past a significant proportion of support for secondary schooling, especially in sub-Saharan Africa, was linked to subsidies and salary enhancements for expatriates working at school level. This is increasingly anachronistic. The costs of this kind of support can be excessive and represent many times those for local staff. Where a large number of expatriates continue to be employed, the reasons why a localization policy has failed need to be established. So also does the question of the long-term impact of a changing cadre of non-national teachers, often drawn from a variety of countries without a conspicuous concern for continuity.

Second, curriculum development in those areas of the curriculum that are most internationalized (mathematics, science, international languages) can benefit from a cross-fertilization of ideas, materials, and expertise embedded in skilled and motivated professionals. Networks allowing different countries to share their experience in curriculum development need to be supported. In addition, strategically located experts could still have a role to play. The effectiveness of such staff would depend on whether sufficient infrastructure exists to translate ideas into educational materials. Their costs, which usually require foreign assistance to support foreign exchange costs, should be justified by the quality of their contributions and the extent to which they can catalyze the development of high-quality curricula that might otherwise take much longer to be developed. Such international experts would need to work very closely with national experts and contribute to the strengthening of national institutions that would continue the work and monitor its implementation.

It should be noted that globalization is beginning to redefine the labour markets that secondary students enter. There is some evidence of convergence in the range of skills and competences that are valued by employers trading internationally. Increasingly, school-leavers want qualifications that are recognized internationally. Where these developments lead to the introduction of new areas into the curriculum which have little or no local history, external assistance can be useful in supporting the first phase of development.

Third, agencies can assist more directly with the production and distribution costs of learning materials, as distinct from their design (which is a curriculum development issue). As the costs of production fall it may be more viable to print materials of high quality where costs are most competitive internationally, and ship books into local markets. At the same time, a real interface between pedagogical needs and textbook publishing can only take place where an industry exists locally or regionally. This may or may not be possible in the short term, depending on the existence of local production and on the capacity, using newer technologies, to produce learning material locally in a cost-effective way. Where it exists and there are foreign exchange costs related to paper, etc., external assistance can be very helpful. Where it does not exist, long-term strategies for improving the provision of books are needed which could be supported this way.

Fourth, teacher training is an area that is frequently under-theorized and poorly resourced in countries with low GER2s. Yet this activity is critical to attempts at reform. If training colleges and the university departments that train secondary teachers are not themselves examples of best practice and developmental centres for the areas they serve, there will be few other sources of professional advice and leadership available to guide and support new practice. Where there is a realistic prospect of training institutions adopting an expanded role in secondary education development, the case for external assistance should be considered. In these institutions it may well be appropriate to contemplate supporting costs that provide a working environment which can inspire trainee teachers, generate learning materials, formatively evaluate practice, and provide career opportunities for the most capable secondary teachers. Initial training institutions generally account for a small proportion of the education budget and relatively small amounts of external assistance can have a substantial impact on their quality. Their staff ought to be aware of the most recent developments in their fields of study elsewhere and be able to adapt and develop these sensitively and realistically for local use. This implies suitable staff development programmes as well as adequate learning and teaching resources.

Fifth, much evidence indicates that, especially at secondary level, curricula in action are heavily influenced by the form and content of public examinations. These examinations often allocate life chances and are typically regarded as 'high stakes' examinations. The quality of examinations varies widely. In many cases, examination systems have historic external links with examination boards in developed countries. In some countries substantial transfer payments continue to be made externally to set, administer, ensure quality of, and process examination papers. External assistance can and should make a direct contribution to the development of reliable and valid examination systems with the objective of ensuring curriculum relevance, technically robust selection, and cost-effective assessment.

Sixth, there is a growing amount of expertise available on school management and on management information systems. Our research shows that not much information is available on secondary education in different countries. More needs to be known on the number of teachers teaching what and where, on the teaching/learning conditions, on the performance of students in different types of schools (public, community based, fully private, distance courses etc.). Evaluation and monitoring at different levels (school, district, region) require technical expertise which can be acquired through training. The results of the analysis of the data it can produce are very useful in determining the impact of previous policy and support and identifying what is worth developing further and what is relatively ineffective. It can also draw attention to differences between schools that can lead to the diffusion of best practice and the reduction of inequalities between schools.

Secondary schools are increasingly complex institutions which require sophisticated management if they are to be effective and efficient. To what extent school-management expertise, procedures and systems can be transferred across systems is yet to be fully determined. But some can and should. It has become usual to devolve financial responsibility to school level in several developed countries. It is argued that locating control and accountability closer to the point of delivery should enhance efficiency and effectiveness. Decentralization is favoured as a development strategy by many agencies and governments. In those developing countries where centralized systems have been the norm and infrastructure is weak, making a reality of decentralized administration and finance is a major undertaking. It requires much careful planning and execution, the training of staff to take on new responsibilities, and enough checks and balances to discourage abuse of the opportunities that decentralization may provide for individuals to develop idiosyncratic practices contrary to national policy. By encouraging exposure to and experience of systems of decentralization elsewhere, agencies may assist with the development of viable strategies that are grounded in the administrative and financial realities of particular systems.

Seventh, funding new initiatives is likely to be most problematic where resources are scarcest, yet this may be precisely where needs are greatest. External assistance can be crucial to develop work that would otherwise not occur. It can and does also support experiments with innovative curricula and alternative delivery systems of secondary schooling which promise cost-effective methods of meeting expanded demand and the needs of those who have missed secondary schooling altogether. This should be development support for limited periods beyond which such innovations need to become self-sustaining. If this is not so, then such assistance begins to resemble recurrent budgetary support, which needs a different kind of justification.

This list of opportunities for assistance would not be complete without some caveats. It has been noted that subvention of expatriates working at school level has ceased to be attractive, except perhaps in the most unusual cases. This may also apply to the use of expatriates in the direct delivery of teacher training both at INSET and PRESET levels. Other areas where foreign assistance to the development of secondary schooling may be thought problematic include innovations in teaching methods, learning materials, and patterns of organizing learning and teaching that depend on levels of resources unlikely to be available across the school system. This is even more the case insofar as advocacy of new methods developed elsewhere is not based on demonstrated and effective practice within a particular country.

## In conclusion

To finance the expansion of their education systems, policy-makers in different countries will have to adopt one or several of the policy options outlined above and choose those which appear most appropriate under their national circumstances. Clearly, there are trade-offs and balances of costs and benefits to be considered which vary between systems. There are also limits to the scope and rate of reform. Thus, it would be unwise to raise the number of pupils per class and increase the teaching load of teachers at the same time as allowing salaries to decline in real terms over a short period. Some options may allow for an increase in participation without endangering the quality of education. This would be the case for those measures that aim at increasing the share of education in the overall budget and those that aim at improving the efficiency in the management of schools and systems. But these measures may not be enough to support a substantial expansion in participation where this is desirable. Some options may have to be considered that would be justified in terms of the balance of advantage in expanding participation at the price of acceptable reductions in quality. The alternative may be to continue to restrict secondary access to small proportions of the population in low GER2 countries. Chapter 11 summarizes the main findings of the research and develops a framework for the analysis of investment decisions for secondary education.

## Chapter XI

# Overview and conclusions

*Keith Lewin and Françoise Caillods*

Since the World Conference on Education for All, many developing countries have succeeded in increasing participation rates at primary level. The success of the EFA initiative has meant that the numbers of qualified adolescents aspiring to enter secondary education have grown more rapidly than have educational opportunities at that level. In most of the countries with a secondary Gross Enrolment Rate of less than 40 per cent, participation rates have not increased significantly over the past decade. In countries with secondary GERs between 40 per cent and 70 per cent, the average GER has increased from 49 per cent to only 56 per cent. The analysis has shown that most, but not all, of the low GER2 countries are in sub-Saharan Africa, have low GNP per capita and low or negative economic growth. They also have high population growth and dependency ratios for the school-age population. Consequently, the absolute number of those without access to secondary schools is increasing, especially in the poorest developing countries. Where GER2 is less than 40 per cent the data suggest that the labour force often contains fewer than 10 per cent with successfully completed secondary schooling. This raises critical questions for development strategies that depend on investment in human resources and knowledge and skills acquired above the level of basic education.

In most developing countries the bulk of secondary education is publicly financed. Low and negative rates of economic growth, as well as high costs, have squeezed the public resources available for financing expanded secondary schooling. At the same time, external assistance has favoured support for basic education. Grant aid and lending targeted at secondary level has represented a declining proportion of total assistance in the poorest countries. Much of what has been made available has been allocated to higher GER2 countries. It is therefore possible that without considered strategies to protect current levels of secondary participation in the countries with the lowest GER2s, secondary enrolment rates and quality will decline from already inadequate levels.

This concluding chapter has four purposes. First it revisits key features of the rationale for investment at secondary level and comments on their implications in different country contexts. Second, it reviews data on the status of secondary education, presents the results of an analysis of the financial challenge and develops a framework for policy analysis. Third, it summarizes country experiences reported in the case studies. Finally, it outlines policy options for sustainable growth.

There are five main reasons for reconsidering approaches to investment at secondary level. First, this book has argued strongly that secondary-school participation is likely to be central to future prospects for development and growth. Secondary education provides the opportunity to acquire skills and competences that are unlikely to be developed over the primary grades. Students in secondary schools are young adolescents acquiring access to abstract reasoning and the kind of flexible thinking skills that are useful in adult life and in employment. These competences provide access to the global economy and the potential that this offers for economic growth. The 'digital divide' in the impact and assimilation of information and communication technology is a problem partly located in the quality and content of secondary schooling. Where the share of an age group successfully completing secondary schooling is small, the educational profile of the working population will hamper attempts to attract direct foreign investment, develop knowledge-based economic activity, and raise international competitiveness.

Second, there is evidence that investment in secondary schooling contributes to differences in growth between countries. Several studies have shown that secondary education has played a pivotal role in the economic growth of East-Asian countries. One of these studies (World Bank, 1993) suggests that Japan's growth after 1960 was especially influenced by the early achievement of high enrolment rates at secondary. Another (*World Development Report*, 1998) notes that Korean economic growth from 1960 was accompanied by heavy investment in post-primary schooling, which contributed to the development of a more educated workforce able to adapt flexibly to rapid innovation in production and products. Recent analysis of economic growth and transformation in Asia (ADB, 1997) indicates that whilst secondary-school investment (in terms of enrolment rates and numbers of years of schooling) was associated with higher economic growth rates in Asia between 1970 and 1990, this was not true for primary school investment. Longitudinal data on enrolment growth suggest that participation in secondary schooling is now what differentiates the faster- and slower-growing Asian countries (Lewin, 1999). Countries that have higher levels of participation in technical and scientific education have higher levels of growth (*World Development Report*, 1998). The foundations for this are laid in secondary schools.

Third, the way secondary schooling is organized in many developing countries with low GER2 may be neither equitable nor efficient. Those who participate are often drawn disproportionately from wealthier households. Gender gaps are typically greater in secondary schooling than in primary in low secondary-enrolment countries. Countries with high levels of GER2 are more likely to have a gender balance in enrolments in favour of girls. Secondary schooling is much more available in urban than in rural areas, to high-density populations than to low density, and to wealthier rather than less well-off families. The utilization of teaching staff, as indicated by pupil/teacher and class/teacher ratios, is often much less intensive in secondary than in primary-school systems. Public subsidy therefore favours higher levels of schooling where participation may be skewed towards the already advantaged. Patterns of access and participation in secondary schooling may be as much a source of inequality as a vector in its reduction. Expanded access should reduce these inequalities.

Fourth, where primary enrolments have been low and are increasing rapidly as a result of EFA commitments, constraints are appearing in the supply side of teachers. Secondary-school systems must successfully graduate sufficient numbers to provide entrants to primary teacher training. Where GER2 is low this is problematic. So also is the supply of qualified applicants to higher education.

Fifth, some countries are being seriously affected by HIV/AIDS. The implications of this are complex and still poorly understood. However, it is clear that teacher attrition rates are rising to unprecedented levels and that labour forces are being degraded by sickness and increased mortality. What evidence there is draws attention to the often high rates of infection amongst middle-level professionals who have completed secondary schooling. If the numbers of teachers and middle managers are being seriously depleted, there may be a need to expand the output of secondary schooling to renew the cadres. Secondary students are in or are approaching the age groups most at risk. Increased participation at that level would allow more effective and widely disseminated health education.

These observations suggest that national development strategies need to identify levels of investment in secondary schooling that are likely to contribute to growth. What these levels are is obviously a difficult question. The answer will be conditioned by the way individual economies are structured and by the identification of areas where there is potential for development. However, a general case is being made that in those countries with the lowest secondary enrolment rates the argument for some expansion is compelling. In such countries less than 10 per cent and often less than 5 per cent of the labour force has completed secondary schooling. No country can be expected to achieve a transition from subsistence agriculture to higher value-added agriculture, more industrial manufacturing and competitive service industries, without a larger supply of new entrants to the workforce who have completed more than primary education. This is even more the case if part of the development strategy is to be related to internationally traded goods and services with increasing knowledge content. In many types of production and service-sector activity low labour costs are not sufficient to yield comparative advantages which outweigh the benefits associated with a more educated labour force. In the global economy, investment flows to where productivity is greatest and competences exist which allow flexible adaptation to new production processes, as well as rapid assimilation of new ideas. Under such circumstances a critical mass of secondary-school graduates is an important asset.

Clearly, however, country circumstances differ. Most obviously some countries have low primary and secondary enrolment rates, others are approaching universal participation in primary but have low secondary enrolments, and a further group have achieved mass participation at both levels. In the first case, where both primary and secondary enrolment rates are still low, it is important to ensure that an expansion of secondary enrolment does not take place to the detriment of investment at the primary level, through the choice of an appropriate financing policy. A balance has to be struck between the need to universalize primary, which should not be seen as simply taking precedence over all investment at other educational levels, and the need to support post-primary education and training. If indeed a critical mass of secondary-school graduates is required to support any viable development strategy, then an upper limit may have to be defined for the proportion of public resources allocated to primary.

Where primary enrolment is nearly universal and secondary enrolment is low, the case for a shift towards supporting growth at secondary level is clearer. Though it may well be that further investment in quality improvement in the first cycle is still needed, the question becomes one of priorities related to whatever development strategy is adopted. Some increases in access and participation at secondary may well have a higher marginal utility for development.

Where secondary enrolment rates are low or approaching middle levels, and there is evidence of oversupply of secondary graduates, the arguments may be different. The level of unemployment may be related to the short-term impact of structural adjustment programmes made necessary by inappropriate macroeconomic or social policy. It may also be that there are problems with the quality of secondary schooling and the relevance of the knowledge and skills it promotes. In such circumstances further expansion of secondary enrolment may not be seen as a priority, at least until employment improves and reforms have taken place. Paradoxically, tight labour markets may increase demand for secondary schooling if the opportunity cost is low. Political and social pressures may promote expanded access. These kinds of conditions suggest that policy should be based on an understanding of likely employment growth, reforms to increase relevance and utility, and considered strategies to increase cost recovery with safeguards to protect balanced participation.

## Is higher secondary enrolment achievable?

The status of secondary enrolments in different countries is outlined in *Chapter 2*. The data set[1] on 150 countries was divided into four groups: those with GER2 between 7 per cent and 40 per cent, 41 per cent and 70 per cent, 71 per cent and 90 per cent, and above 90 per cent. Forty-four countries have GER2s below 40 per cent. Fully two thirds of these are in sub-Saharan Africa, five are in central and South America and six are in Asia. There are systematic differences between high and low GER2 countries.

When GER1 and GER2 are compared it is clear that where GER1 is below 80 per cent, GER2 is almost always below 30 per cent. Above this threshold, GER2 varies across a wide range. This reinforces the view that levels of GER2 in most countries result from policy choices and investment preferences, not simply resource constraints.

The data also show that on average low GER2 countries allocate less to secondary education as a proportion of GNP than those with higher GER2s (0.86 per cent compared to 1.41 per cent) and that unit costs as a proportion of GNP are higher in the low GER2 countries.

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[1] UNESCO data set 1998.

The comparison of public unit costs between primary and secondary is striking. In very low GER2 countries this ratio averages 3.5:1; in high GER2 countries the public unit cost of secondary is only 1.3:1 times greater than primary. Part of the reason for this lies in differences in pupil/teacher ratios. These average 37 per cent less than those at primary in low GER2 countries, but only 18 per cent less in high GER countries. Secondary teachers' salaries also tend to be a greater ratio of primary teachers' salaries in low GER2 countries. We can also note that class/teacher ratios can exceed 3:1 at secondary level in low GER2 countries, compared to not much more than 1:1 in most primary systems. Though this does not have a direct effect on unit costs since these are determined by the pupil/teacher ratio, it does indicate that higher costs are not necessarily buying more teaching time. Where class/teacher ratios are high this implies that student contact time is low or teaching group size unjustifiably large.

We can conclude that secondary schooling is relatively most expensive in relation to national resources where enrolment rates are lowest. Where the relative cost of secondary-school places is high, increased participation will be more cost constrained than where it is low. If higher levels of participation are to become a reality, then the total cost of secondary-school systems will quickly exceed that of the primary system, unless unit costs are reduced.

In many developing countries with low participation rates in secondary schooling, the character and organization of secondary schools have their origins in elite institutions designed before independence to cater to a small minority of students destined to enter government employment. Most secondary systems have been highly selective, have teaching and curricula traditions that reflect norms inherited from elite schooling traditions, and have been relatively well resourced. Simple replication of existing institutions and practices to accommodate larger numbers is neither affordable nor appropriate. High cost, strongly selective and academically orientated secondary schooling is inconsistent with substantially enlarged participation.

We can explore the challenge created by low participation rates in secondary through projections of the costs that would need to be met to achieve different levels of GER2. An enrolment-driven model has been used to simulate the various scenarios based on data derived from the UNESCO database. Simulations have been run that explore the behaviour of GERs and recurrent costs over a 15-year period for different countries with GER2 below 40 per cent and between 40 per cent and 70 per cent.

*Table 11.1* provides a regional perspective using UNESCO data (*World Education Report,* 1998). Country-by-country estimates can be found in *Chapter 3*. The results suggest that in sub-Saharan Africa, on average, countries would need to allocate nearly 4 per cent of GNP to secondary schooling alone to achieve GER2 of 60 per cent (column 5). Over 5 per cent of GNP would be needed to achieve GER2 of 80 per cent (column 6) with current cost structures. This is clearly unlikely to happen, especially when the amounts needed to sustain GER1 100 per cent are added (column 8). The figures for other regions are within a range that suggests that if such targets were priorities they could be achieved except in the lowest GER2 countries.

Table 11.1. The financial challenge of increased secondary enrolment[2]

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| | GER1 | GER2 | Education as % GNP | % Education expenditure on secondary as % GNP | % GNP needed for GER2 60% | % GNP needed for GER2 80% | % GNP needed for GER2 100% | % GNP needed for GER1 100% |
| Africa | 85.9 | 28.2 | 5.8 | 1.4 | 3.8 | 5.1 | 6.3 | 2.9 |
| Central America, Caribbean | 104.1 | 49.3 | 4.3 | 1.0 | 1.1 | 1.5 | 1.9 | 1.5 |
| South America | 108.8 | 60.2 | 3.5 | 0.7 | 0.8 | 1.0 | 1.3 | 1.2 |
| Asia and Oceania | 99.9 | 51.4 | 4.2 | 1.2 | 1.5 | 2.0 | 2.5 | 1.7 |

The results in *Table 11.1* assume that current cost structures are retained. If these could be changed then expanded access might become more feasible and affordable. In addition it would be necessary to increase private contributions to the cost of secondary-school places, or to envisage alternative forms of delivery. External assistance could also play a role in easing the financial burden. In all cases a new investment strategy for the secondary education sub-sector is needed.

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[2] These unweighted averages are illustrative and are based on the countries for which data are available.

## Parameters influencing policy options on secondary participation

The main structural determinants of the gross enrolment rate at secondary can be summarized as follows:

**GER2 = x /ac**

where

**x =** public expenditure on secondary education as a percentage of GNP

**c =** public recurrent expenditure on secondary schooling per student as a percentage of GNP per capita

**a =** the proportion of the population of secondary-school age

The determinants of GER2 have different characteristics. The value of x can be varied up or down within the total expenditure for education. Its magnitude can be anything from below 0.5 per cent to over 3 per cent. Clearly if it is varied upwards this implies a diminution, *ceteris paribus*, in the allocation to other parts of the education budget (primary, tertiary, administration, etc.). Shifting the balance of allocation to favour secondary might be a reasonable policy goal where more is spent on the tertiary level than on the total secondary system (e.g. Malawi, Costa Rica). This could release resources to support increased secondary participation. What is possible will depend on the initial value of **x**, the amount of GNP allocated to education, and the case made to defend the current distribution of public funds between levels. The effect will also depend on whether the economy as a whole is growing or shrinking.

The value of c is determined by the unit cost of a secondary-school place as a percentage of GNP per capita. Its value varies over a very wide range from 5 per cent to over 100 per cent. It is determined mainly[3] by a combination of pupil/teacher ratios and teachers' salaries in relation to GNP per capita. Where pupil/teacher ratios are low and can be increased, the value of **c** will fall and allow more secondary students to be enrolled at the same total cost. The same outcome could be achieved by reducing average salary costs (e.g. by employing a greater proportion of younger teachers or increasing the proportion of teaching assistants). Where the value of c is very different to the average of comparable groups of countries, the reasons behind this invite scrutiny and might suggest policy options.

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[3] Except where teachers' salaries are not the dominant recurrent cost, e.g. in some boarding-school systems.

The value of **a** varies between less than 5 per cent and nearly 20 per cent. Its magnitude cannot be changed through educational policy, except through varying the length of the secondary cycle. It arises from the historic rate of population growth. It will change if demographic transitions occur. The change will however take some time to have an effect on the enrolment rates, since there will be a lag of a number of years between changes in, for example, fertility, and the arrival of students in the secondary-age range.

Strategic distinctions can be made between countries where the problems of expanded access to secondary schooling are located primarily in the need to increase overall enrolment and those where the priority is to increase internal efficiency. In the former, increased access requires pro-rata increases in public expenditure; in the latter, increased access can be achieved by reducing repetition and other sources of inefficiency (poor teacher deployment, low teaching loads etc.) without necessarily increasing costs. Countries which fall more or less into these categories can be identified.

*Table 11.2* outlines a variety of country cases for values of **x**, **c** and GER2 with a tentative interpretation of their significance. Where both **x** and **c** are low, and GER2 is low (1), the implication is that there is not much commitment to expanding participation in secondary and that the education budget as a whole is a small proportion of GNP. The most obvious way of expanding access is likely to be to give education in general and secondary in particular more budgetary priority. Where budgetary allocation is low and unit costs high (2), participation will be very low. The implication is that small numbers of students are benefiting from secondary schooling, which ought to be of relatively high quality given its costs. Expansion will be constrained by high unit costs. Where budgetary allocation is high and costs are high (3) participation will also be constrained by costs which need to fall if access is to be expanded. Countries with low allocations to secondary and low public unit costs (4) can have relatively high participation if large proportions of costs are met outside the public budget from community support and through private schooling. This may have equity implications. Where budgetary allocations are high and unit costs low (5), participation should be high but its quality may be questionable.

Table 11.2. Framework of parameters influencing policy options on secondary participation

| | Public expenditure on secondary education as % of GNP (x) | Public unit costs of secondary as a % of GNP per capita (c) | GER2 | Implied commitment to secondary schooling | Possible policy implications |
|---|---|---|---|---|---|
| 1 | Low | Low | Low | No priority given to secondary | Increase % budget to secondary, allow unit costs to increase if quality is low and low unit costs are a cause |
| 2 | Low | High | Very low | Low priority to access and constrained by high costs | Reduce public unit costs and increase budget for secondary |
| 3 | High | High | Low | Low priority for mass access, which is constrained by high costs | Reduce public unit costs to increase access |
| 4 | Low | Low | High | Poor quality and/or largely privately financed | Improve quality if low; consider access and equity implications of private funding if prevalent |
| 5 | High | Low | High | High priority given to access to secondary | Quality may be low and unit costs may need enhancing |

This framework for analysis provides some insights that could be applied to specific country cases. Five points should be noted.

First, public expenditure on secondary education as a proportion of GNP has to be considered along with the overall allocation to education and the balance between different levels of education (e.g. primary, tertiary) and administration. It should also take into account secondary-level allocations that may be channelled through training budgets of ministries other than the Ministry of Education.

Second, whether GER2 is regarded as low or not depends partly on its absolute value, and partly on labour market signals and macroeconomic development strategy. It also depends on what judgements are made about the relative importance of increasing GER1, the primary enrolment rate. If this is already high, the case for increasing GER2 as a priority may be greater than where GER1 is low. If increased resources for secondary schooling were to draw investment away from primary schooling to the extent that participation diminished, it is unlikely to be the best option.

Third, the relationship between expenditure and enrolment rates will be modified if there are significant amounts of private schooling or private contributions. Practice varies so widely that these cannot be included in this framework explicitly.

Fourth, unit costs depend mainly on teachers' salaries and how teachers are deployed. Differences between countries will partly depend on salaries of comparable groups in the rest of the economy, and on the cost of living for such groups. They will also depend on what are thought to be appropriate and necessary levels for the pupil/teacher ratio at secondary and on patterns of school organization (curricula constraints may lead to large numbers of teachers in small schools to cover all subjects, boarding costs may be substantial etc.).

Fifth, this framework cannot help make firm judgements about school quality and of the value for money currently delivered by secondary schooling. It is implied that these judgements must feature in any realistic policy analysis since expanding enrolments or allocating more resources to already inefficient or ineffective school systems is clearly not desirable. Thus where class/teacher ratios are unacceptably high, they should be encouraged to fall; where indicators of achievement for particular types of school are unsatisfactory they should not be expanded until the causes are understood and addressed.

One last issue needs to be raised in relation to a policy framework. The size of the secondary-school-age population is normally stable over the short term and is not a policy variable under the control of Ministries of Education. However, the possible impact of HIV on dependency rates and the size of the school-age population is substantial. Modelling the impact of HIV is complex since it depends on the patterns and rates of new infection, the progression from HIV to AIDS, and from adult AIDS to death. All of these vary between countries and over time. The populations of five African countries on which data are available (UN Secretariat, 1998) are projected to grow by between 10 per cent and 20 per cent less than they would have done without HIV by 2015. Put differently, population growth rates are projected to fall dramatically. In Botswana the population growth rate of 2.9 per cent (1990-95) could fall to 1.2 per cent, in Zimbabwe it fell from 3.3 per cent in the 1980s to 2 per cent (1990-95), and it is projected to decline to less than 1 per cent (2000-2005). In South Africa a decline is anticipated from 1.9 per cent to 0.3 per cent.

The implications are that the size of the secondary-school-age group will decline as fertility rates drop and family size falls. Dependency rates are likely to increase in the first instance, with fewer adults relative to children. How dependency rates behave subsequently is difficult to establish. At some point a new equilibrium is likely to be reached within a smaller total population. The consequences of HIV are thus very important for problems of financing secondary-school growth. Much more work is needed to project and monitor what effects predominate in the short and long term (Barnett and Whiteside, 1999).

## Lessons from country data

A number of case studies have been undertaken in selected countries of Africa, Asia, and Latin America. They provide some illustration of the magnitude of the problems and some of the approaches that different countries have employed to support growth in secondary schooling.

Several factors enabled **Zimbabwe** to expand its secondary schooling quickly after independence. The main factor appears to have been a high level of commitment of public resources. As much as 8 per cent of GNP and 17 per cent of public expenditure were allocated to the education budget as a whole. The second factor is that the public costs per student at secondary appear to average about twice those at primary, which is low by sub-Saharan African standards. During the period of most rapid expansion, the pupil/teacher ratio increased rapidly; so did the number of untrained teachers. Since then, the pupil/teacher ratio has fallen back to historic levels and untrained teachers have been trained whilst working in schools. Part of the reason for the present relatively low costs is the extent to which the public financing of secondary schools is supported by fees and other contributions. Third, automatic promotion at primary has reduced repetition rates to low levels. Fourth, double shifting has also made a contribution to increased capacity and has made savings in capital costs.

The analysis however draws attention to some of the problems that have been associated with expansion. Attrition throughout secondary schooling remains significant and the most common explanation points to the relatively high costs that fall on parents. Since drop-out is concentrated amongst the poor and amongst girls, secondary schooling tends to reproduce existing social and gender inequalities. A growing problem is the high level of unemployment of secondary-school graduates.

**Sri Lanka** has achieved high levels of secondary enrolment at low cost, in spite of being a low-income per capita country. Sri Lanka achieved this result whilst consistently investing around 3.5 per cent of GNP in education and not much more than 10 per cent of its government expenditure. The main reason for such low costs stems from the fact that salary levels relative to GNP are lower than in many other countries. Second, Sri Lanka has an unusual pattern of open access to schooling without selection through to Grade 11. Many secondary schools include primary sections (or vice versa) and benefit from the economies of scale that this can yield on fixed costs. They share staff across grades and teachers are not as strongly differentiated into primary and secondary teachers as in many other countries. As a result, the costs of secondary-school places are on average no more than twice those of primary. Finally, enrolment gains have been achieved in a context of demographic transition to low growth. Currently, the growth in the school-age cohort is about 1.2 per cent. Several problems persist, such as inequalities between schools, especially between those secondary schools that have university entrance grades and those that do not.

**China** has had a very diverse experience in expanding access to secondary schools. Liberalization and the development of a socialist market economy since the mid-1980s have resulted in a great range of financing mechanisms to support growth in enrolment. These have complemented long-standing structural features of school financing that are peculiar to China and former communist countries. Conditions vary widely across this vast country, but common arrangements include: earmarked local taxation for education levied on business turnover and payrolls; allocation of a share of the profits of school-run businesses (these are enterprises in common ownership, but not usually using school staff or students as employees); and different forms of collective work-unit support for schools based in the community (in cash from fund-raising and in kind from labour, etc.).

In the two areas studied in China, low population growth has resulted in a shrinking age cohort, but there is also a high level of dependence on work-unit related income from activities unrelated to schooling. It is common to find that financing of school development is achieved from entrepreneurial use of school assets (e.g. renting space and buildings). A significant proportion of urban schools generate substantial income from fee-paying students from outlying areas. One consequence has been the development of large differentials between unit costs in urban and rural schools. It is also true that teachers' (publicly funded) salaries and teachers' total income have diverged widely as a result of non-budget contributions from local fund-raising. It remains to be seen how the tensions that have developed as participation grows will be resolved.

**Costa Rica** illustrates a different case. The country has followed a consistent development strategy to favour investments in the social sector and achieved, more than two decades ago, relatively high levels of secondary participation. Recession in the 1980s was however accompanied by a decline in enrolment rates at secondary from about 62 per cent to 49 per cent. Existing pass rates, repetition and drop-out rates in secondary schools are indicative of problems of insufficient quality and fragile effective demand. The unit cost of secondary education is low, as shown by the ratio of costs between primary and secondary, which is close to 1:1. This has been made possible by the relatively low level of salaries, although that may have had a demoralizing effect on teachers. Measures are needed to improve quality and to make secondary schooling more attractive to students from rural and peri-urban low-income households (e.g. curriculum reforms, distribution of learning materials, retraining of teachers, increase in teacher salaries). Several cost-rationalizing measures have been proposed that could offset some of the planned increase in expenditures. Some reallocation of funds between levels may have to be considered, since the country is unlikely to increase significantly the amount allocated to education as a proportion of GDP, which is already around 6 per cent.

**Malawi and the francophone African countries** considered in our study face a much more difficult state of affairs. Secondary GERs remain very small in these countries, ranging from 6 per cent in Malawi in normal government secondary schools to 25 per cent in Côte d'Ivoire. The difficulties in improving access to and quality of secondary schooling arise from several sources. First, universal primary education is far from being achieved in all of these countries and competition for scarce resources is fierce. Second, the overall budgetary position is constrained by a lack of economic growth, a limited fiscal base and heavy commitments to debt servicing and reimbursement. Malawi and Côte d'Ivoire allocate 5 to 6 per cent of their GNP to education and it seems difficult to go much above this level. Third, costs per student in normal secondary schools are high and average several times those in primary schools. Fourth, unless some expansion of the universities takes place at the same time, a further constraint on secondary expansion might be located in teacher supply.

Several of these countries are committed to expanding access to secondary schools (Malawi, Mali, Senegal and Côte d'Ivoire). The magnitude of the financial challenge is considerable. Measures are being envisaged which range from reducing the length of lower-secondary education (Mali), reducing the number of boarding schools and expanding day secondary schools (Malawi), increasing private contributions (Malawi) and encouraging the development of the private sector (Côte d'Ivoire, Madagascar, Mali). How great a part of public resources is to be devoted to secondary education remains a difficult issue. Universal primary schooling is far from being achieved and, to differing degrees, unemployment of secondary-school graduates is appearing.

## Meeting the challenge: policy options for growth

The main options in addressing the challenge of increased participation at secondary level revolve around increasing the proportion of GNP allocated to education in general and secondary in particular, and in reducing unit costs, increasing efficiency and exploring opportunities to increase cost sharing. The options, and some of their implications, are summarized in the following Tables 11.3 to 11.6.

Table 11.3. Options which would increase public spending on secondary schools

| Action | Comment |
|---|---|
| Increase education budget as % of GNP | Where the percentage of GNP allocated to education is less than 6% there may be scope for an increase;<br>Where debt forgiveness is considered, more resources could be allocated to education in general and to secondary education in particular. |
| Increase education budget as % of government expenditure | Where the percentage of budget is less than 20% there may be scope for an increase; if GNP growth has been negative allocations should be increased to maintain the real value of educational spending;<br>Where debt forgiveness is considered, more resources could be allocated to secondary education. |
| Increase spending on secondary as a % of government educational expenditure | Shift allocations in favour of secondary, depending on enrolment and costs at other levels. Earmark a proportion of funding for secondary. |
| Require decentralized authorities to finance some of the costs | Municipalities and local authorities may be asked to finance school building and contribute to some recurrent costs. |

The analysis data in *Chapter 3* (*Tables 3.1, 3.2 and 3.3*) have shown the scope for overall increases in allocation to education in different countries and the extent to which there may be room to increase the current level of spending. It appears that for many low GER2 countries the increases needed in the proportion of GNP allocated to secondary education for significant expansion are unrealistic. Where more than 5 per cent of GNP is already committed to the education budget as a whole, significant increases are unlikely. Redistribution to favour secondary may be difficult where universal basic education has yet to be achieved.

There are cases where more could be allocated, and where more is spent on higher education than all of secondary education. Here different policy priorities are an option. Where there are high levels of primary enrolment and relatively low GER2s, it is more feasible to suggest that any increases in allocation up to 5 or 6 per cent of GNP should be directed towards expanding access to secondary schooling. The debt forgiveness schemes that are under consideration could change the circumstances of the most indebted countries and release additional resources. This would only benefit secondary schooling if sector-wide approaches recognize the importance of a balanced approach to financing both primary and secondary. Increased public finance could also come from decentralization where this enables local authorities to raise revenue that can be channelled into educational support.

There may be scope for re-examining the length of secondary schooling and how it is segmented into more and less specialized cycles. Policy on curriculum options, selection and tracking, and specialized provision all carry cost implications that may need reappraisal in the light of new circumstances that make it inappropriate to simply expand existing provision. Where there are insufficient resources to expand access, choices have to be made between sustaining high-cost provision and finding ways of reducing costs through rationalizing option choice and limiting selection into high-cost specializations. Alternative delivery systems that make more use of peer learning, self-instruction and distance methods could all reduce unit costs without necessarily diminishing quality. They offer possible strategies for expanding access to those currently out of school as well as lower unit costs for those enrolled.

High public unit costs generally arise from high salary levels, low pupil/teacher ratios and boarding costs. Salary levels have to be judged in relation to national labour markets and the cost of living. They do vary

Table 11.4. Options that would reduce unit costs of secondary schools

| Action | Comment |
|---|---|
| Reduce the length of secondary schooling | Where secondary cycles are over long, reduce in favour of greater participation and completion |
| Lower unit costs of secondary by combining lower secondary and primary school grades | Extending enrolment to include some or all lower secondary grades in primary schools should reduce costs of provision and increase retention. Transitional costs have to be weighed against benefits. |
| Limit enrolment in high-cost technical and vocational streams | Restrict enrolment in high-cost specialist schools and streams. 'Technologize' the school science curriculum. Introduce vocational subjects with average costs. |
| Adopt a core curriculum with limited options at lower secondary | Organize learning around a common core with polyvalent teachers managing whole class teaching. |
| Restrict option choice at upper secondary | Establish minimum group sizes for options. Limit the number of options available in each school. |
| Include periods of self-instruction, distance and mixed-mode delivery | Adopt more flexible learning strategies especially for older students which would include peer learning, materials-based self-instruction, and conventional and information technology distance-based programmes. |
| Increase pupil/teacher ratios | Where pupil/teacher ratios are low increase to maxima determined by physical constraints and demonstrated good practice; 40:1 may be feasible. |
| Reduce class/teacher ratios | Establish class/teacher norms suited to curricula organization and appropriate teaching loads. Class/teacher ratios could be maintained below 2:1. |
| Increase average secondary-school size | Use school mapping and economic analysis to establish minimum secondary-school size. Profile of economies of scale. Enrolment of 1,000 may be a benchmark. Allow special cases to reflect demography etc. |
| Increase teaching hours worked | Review teaching workloads. If low identify new norms. Profile workloads of more and less qualified and experienced teachers. Distribute loads more evenly. |
| Increase the proportion of teaching assistants, temporary teachers and younger teachers | Encourage recruitment of lower-cost teachers within career structures that allow development and promotion.<br>Extend use of experienced teachers using team teaching, parallel classes, common lesson planning. Use experienced to support inexperienced. |
| Reduce average teachers' salaries | If teachers' salaries are substantial multiples of GNP per capita, and above levels for comparable groups, consider pay restraint and increases below the rate of inflation. If salaries are low and result in widespread second jobs, increase salaries and non-salary benefits. |
| Reduce non-essential boarding | Sustain boarding only where population density/ transport/ special needs justify costs. Otherwise switch to day schools and/or increase cost recovery. |
| Reduce non-salary costs | Review non-salary costs. Protect learning-material expenditure. Review flat-rate subsidies for food, books etc. in favour of needs-based subsidies. |

considerably between countries as a percentage of GNP. Significant reduction in teacher salaries where these are judged high may or may not be feasible. Where they are low, any further reductions would have negative consequences for teachers' motivation and performance. It may be attractive to consider whether there are ways of recruiting more assistant teachers so as to reduce average salary costs, if this can be achieved in ways that complement the work of highly paid and fully trained teachers.

Where pupil/teacher ratios are low these can be increased. One indicator of whether this is possible is the class/teacher ratio. Where this is more than 2:1 lower pupil/teacher ratios (and therefore unit costs) could be achieved through increases in teacher productivity. Other options include exploring the economies of scale that might result from increases in average school size where this is low, reducing non-essential boarding and/or associating it with cost recovery, and economizing on non-salary costs where this does not reduce the supply of learning materials.

There are options to increase efficiency in many secondary-school systems. Drop-out is inefficient if it results in incomplete mastery of competences associated with secondary schooling. It increases the number of years of investment needed to produce a successful secondary-school graduate. Repetition is inefficient (and probably inequitable) if it results in many places being occupied by those repeating at the expense of those out of school. The level of repetition is itself some indication of the effectiveness of learning and teaching. It can be reduced if this is prioritized as a goal since it is largely under the control of Ministry of Education policy. Rates of repetition may be reduced through action to reduce the variation between schools in pupil/teacher and class/teacher ratios, reduce teacher absenteeism, adapt curriculum to local circumstances, and increase students' time on task.

Other areas where efficiency might be increased include eliminating ghost teachers from payrolls, providing incentives to improve learning outcomes and student throughput, and improving teacher deployment. Where teachers are trained to teach several subjects, utilization is generally higher than where teachers specialize in only one subject. Lastly, one or other of the many systems of double shifting can be introduced where conditions are appropriate. This saves on capital costs and can save on some recurrent costs, depending on how it is configured.

Table 11.5. Options that would increase efficiency in secondary schools

| Action | Comment |
|---|---|
| Reduce drop-out | Establish reasons for drop-out. Where these are under the control of the Ministry and schools, devise interventions and curriculum modifications to reduce drop-out. |
| Reduce repetition | Establish reasons for repetition. Where these are under the control of the Ministry and schools, devise interventions and curriculum modifications to reduce repetition. |
| Reduce variation in pupil/ teacher ratios and class/ teacher ratios | Monitor variation in school inputs and performance indicators. Use formula funding to reduce variance between schools on key indicators. |
| Eliminate ghost workers on the salary payroll | Audit payroll against validated school census data. |
| Provide incentives to increase efficiency of school management | Review national, regional, district and school-level allocation and spending procedures. Develop incentives for budget holders to increase efficiency, especially in relation to teacher deployment and other major cost drivers. |
| Train teachers to teach several subjects | Increase teacher utilization by ensuring teachers can generate full teaching loads, teaching across several subjects if necessary. |
| Double-shift schools | Double-shift schools where population density allows if this increases capacity at marginal cost. |
| Reduce teacher absenteeism | Review conditions of service; limit penalty-free casual leave; reward continuous attendance with bonuses. |
| Adapt curriculum to seasonality and patterns of attendance | Consider curriculum development designed to recognize irregular pupil attendance and modularize learning. |
| Increase time on task | Increase student learning time through better classroom management and pedagogy; reinforce through school and district supervision systems. |

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Table 11.6. Options emphasizing cost sharing

| Action | Comment |
|---|---|
| Tuition fees | Consider the scope for contributions to costs through tuition fees in public schools.<br>Encourage the multiplication of private institutions without or with partial government support. |
| Learning-materials fees | Consider learning-material fees and subsidized loans schemes. |
| Food and boarding fees | Collect contributions to food costs and boarding fees from those who can pay. |
| Rent premises | Rent unused space and facilities where practicable. |
| Community contributions in cash and kind | Offer incentives and matching grants for community assistance. |
| Local educational taxes | Levy earmarked taxes on employees and businesses locally with appropriate accountability. |
| Fund-raising incentives | Offer incentives and matching grants for fund-raising by PTAs etc. Scale to reflect wealth of community.<br>Offer tax incentives. |

Tuition fees are an obvious way of recovering some of the costs of supporting access to expanded secondary schooling. Different developing countries have very different practices concerning the extent to which secondary schooling is free for the student. Most anticipate some contributions, but often these are a small proportion of actual costs. Some recover substantial proportions of costs. Since secondary-school financing takes so many forms, it is difficult to generalize. However, where there is evidence that incomes are high enough to permit significant fee-paying, this option should be considered, along with safeguards to subsidize access for those from low-income families. Where participation is low and private demand exceeds the capacity of the public-school system, the balance of advantage would seem to indicate a positive policy climate for the growth of private provision. If this succeeds in increasing enrolment at no additional public cost, it can be seen as a net benefit.

Contributions towards the costs of learning materials are feasible and widely requested. Schemes have to recognize that pricing must be appropriate or availability will suffer. Where schools have some autonomy over the funds they generate, they can reduce operating costs by requesting support for food and boarding costs, and generate income from renting facilities. Cost sharing with communities is possible, both for capital and running costs, where this is expected and encouraged. Matching grants, tax incentives and local fund-raising can all be significant in increasing the flow of resources. It has to be recognized that the capacity of families and communities to contribute is dependent on their level of income. This may be very limited where there is little economic growth, poverty is widespread, and opportunities for income generation are scarce. If communities are already heavily engaged in financing primary education, cost recovery for secondary schooling adds a further burden on scarce resources. The potential of cost recovery to finance expanded participation is therefore closely bound to particular country contexts.

The last option for increasing the resources available to stimulate secondary education in developing countries is to invite external assistance. In the countries with the lowest GER2s and the fewest prospects of financing expansion domestically, this option should be seriously considered. Chapter 10 details areas in which such assistance may be most effective. These include appropriate capital investment in buildings and equipment; support for curriculum development in strategic areas that include mathematics, science and technology, information and communication technology and language; production and distribution of learning materials; teacher education; assessment; and school management.

We have noted that support for the development of secondary-school systems has not been favoured by donors and lending agencies over the past decade. This book has argued that investment at secondary level appears more and more as a missing link in human resource development strategies. It carries consequences both for future economic growth and for the achievement of social goals, not least those defined by commitments to Education for All. If this is true then some re-profiling of external assistance is timely.

## Concluding remarks

It is clearly not possible to end this book with a single list of clear-cut recommendations. Whether different countries will be able to increase the share of government resources for secondary education, reduce the cost per pupil to allow expansion, increase internal efficiency to allow greater access, or develop cost-sharing mechanisms to co-finance more enrolment is a subject for country-level analysis. What effect these various options will have and which are practicable also depends on projections of resource flows and on qualitative judgements of political, professional and structural feasibility.

What can be said is that the analysis here draws attention to a set of concerns that are likely to be prominent in education and development policy over the next decade. As the Education for All agenda gathered momentum during the 1990s, issues of access, participation, and financing of secondary schooling were not the subject of the most prominent policy debates. In the majority of developing countries, where primary gross enrolment rates are approaching 100 per cent or more, the scene is set for attention to shift from primary to higher levels. In those countries with low primary enrolments and the lowest secondary participation, this analysis places in sharp focus questions of how best to decide the level of priority that should be given to investment in secondary schooling as part of a coherent medium-term development strategy. It is not obvious that the pattern of the past ten years, which has seen secondary enrolment growth stagnate or decline in low GER2 countries, is the best way forward. It is clear that without more efficient delivery at lower cost per student and greater availability of financing, secondary-school participation will not increase. Where development strategy assumes improvements in the quality of the labour force based on attributes acquired and consolidated through secondary schooling, the consequences of under-investment may be felt acutely. So also may be the social and political consequences of restricted access and outmoded curricula which fail to address the needs of the next generation entering a rapidly changing social world.

This book has analyzed the financing of education at secondary level. It has developed theoretical insights and case-study material that present a portrait of current status, contemporary issues and emerging problems. This kind of analysis will be familiar to economists and planners of education. For other readers it is appropriate to emphasize the fact that no planner or economist conducts an analysis in a vacuum. Issues of resource allocation for secondary schooling are important because they determine how many students can participate and under what kind of learning and teaching conditions. Ultimately, however, the effect of investment in education will be determined by both the quantity and the quality of what can be provided. Improved financing can enhance the former and create the conditions under which the latter can be realized.

Appropriate levels of investment in secondary schooling are critical to development. Secondary-level education can and should offer learning that is qualitatively different to that at primary level. Effective secondary schooling introduces students to formal reasoning, problem-solving skills, and occupationally relevant content and applications of knowledge. It develops competences that provide access to the global economy and the potential that this offers for economic growth. It is the arena from which many of the next generation of leaders will be drawn. Expanding access can contribute to equity, can be organized in ways which are pro-poor and contribute to poverty reduction, and can enhance the capabilities on which development depends. The challenges are clear. The strategies that are needed have been identified. There are trade-offs and balances of costs and benefits to be considered. Policy on financing is at the heart of new approaches to enhanced provision. The task is now for governments, planners, educational stakeholders, and agencies to identify those approaches that will succeed in improving participation, achievement and quality at secondary level in the particular circumstances of different developing countries.

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This book explores the problems and issues that surround secondary school financing. It outlines the rationale for expanding secondary education and investigates under what conditions it might be possible to do so at sustainable levels of cost. It carries out the analysis for different groups of countries, using data derived from the UNESCO database. It then analyzes the issue on the basis of case studies in Asia, Latin America and Africa. It concludes with a discussion of the policy options that offer prospects of improved access at sustainable levels of cost without unacceptable deterioration in quality.

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